ORDER NO. AD8812307C9

Service Manual

COMPACT disc DIGITAL AUDIO

DIGITAL

Compact Disc Player

SL-P555

Color

(K)...Black Type
(S)...Silver Type

Area

Country Code	Area	Color
(E)	Continental Europe.	(K) (S)
(EK)	United Kingdom.	(K) (S)
(XL)	Australia.	(K) (S)
(EG)	F.R. Germany.	(K) (S)
(EB)	Belgium.	(K) (S)
(EH)	Holland.	(K) (S)
(EF)	France.	(K) (S)
(EI)	Italy.	(K) (S)
(XA)	Asia, Latin America, Middle Near East, Africa and Oceania.	(K)
(XB)	Saudi Arabia.	(K)
(PA)	Far East PX.	(K)
(PE)	European Military.	(K)
(PC)	European Audio Club.	(K)

SPECIFICATIONS

■ Audio

No. of channels	2 (left and right, stereo)
Frequency response	2–20,000 Hz ± 0.3 dB
Output voltage	2 V (at 0 dB)
Dynamic range	98 dB
S/N ratio	100 dB
Harmonic distortion	0.002% (1 kHz, 0 dB)
Total harmonic distortion	0.0035% (1 kHz, 0 dB)
Wow and flutter	Below measurable limit
Output impedance	Approx. 600Ω
Load impedance	More than 10 kΩ
Headphone output level	15 mW max. 32Ω (adjustable)

■ Signal Format

Sampling frequency	44.1 kHz
D-A conversion	16-bit linear

■ Pickup

Wavelength	780 nm

■ General

Power supply

For Continental Europe: AC 50/60 Hz, 220 V

For United Kingdom and Australia: AC 50/60 Hz, 240 V

For others: AC 50/60 Hz, 110 V/127 V/220 V/240 V

Power consumption	11 W
Dimensions (W × H × D)	430 × 116 × 333 mm
Weight	5.2 kg

Specifications subject to change without notice.
Weight and dimensions shown are approximate.

Technics

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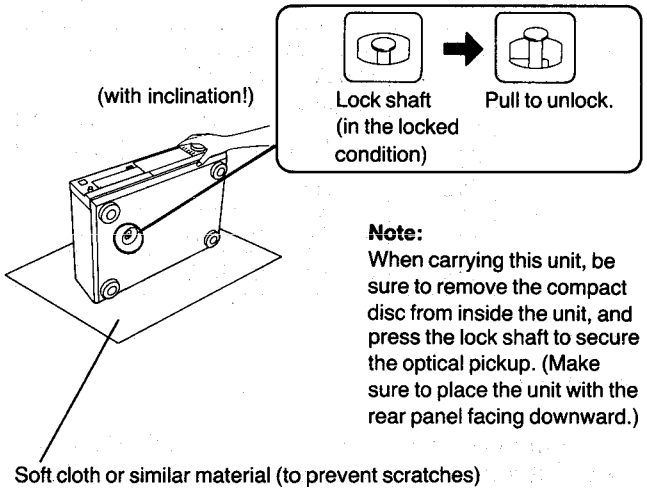
■ PLACEMENT

Before placement

The optical pickup is secured to prevent damage during transport. Be sure to release it before use.


(with inclination!)
Lock shaft (in the locked condition)
Pull to unlock.
Soft cloth or similar material (to prevent scratches)

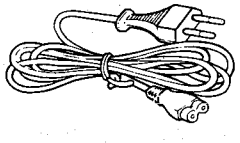
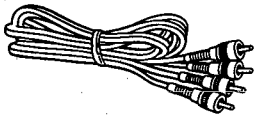
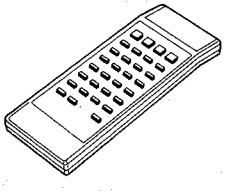
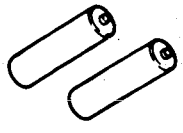
Note:
When carrying this unit, be sure to remove the compact disc from inside the unit, and press the lock shaft to secure the optical pickup. (Make sure to place the unit with the rear panel facing downward.)

Notes of placement

- **Place on a flat, level surface so that the front-rear inclination does not exceed 5°.**
- **Avoid places such as the following:**
  - Near any equipment or device that generates strong magnetism.
  - On any heat-generating equipment or device, or in any place where the temperature is high (40°C or higher).
  - Extremely cold places (5°C or below).
  - Near a tuner or TV (It may cause noise in the broadcast, or disturbance of the TV picture.)
- **Do not place heavy objects, other than system components, on top of the unit.**
- **When carrying or storing the unit, handle it with care so it is not subjected to any strong bumps.**
  Always remove the disc before storing the unit for any period of time.
- **To avoid problems due to vibration.**
  - Do not place a book or similar object under this unit.
  - Do not route the connection cables (of this or other units) across the operation panel, across the top, or under the unit.

■ ACCESSORIES

- AC power supply cord .. 1
  SJA187 (E, EG, EB, EH, EF, Ei)
  SJA173 (XL)
  SJA193 (EK)
  SJA168-1 (XA, PA, PE, PC)
  SJA183 (XB)
- Stereo connection cable 1
  (SJP2249-3)
- Remote control transmitter 1
  (EUR64766)...Black type
  (EUR64767)...Silver type
- Batteries 2
  UM-4NEP/2S (XL)
  UM-4NE/2S (Others)

D

ORDER NO. AD8812CDPADJ

Compact Disc Player

SL-P202, P212, P222, P333, P555, P777

DEUTSCH

ELEKTRISCHE JUSTIERUNG

■ Abmessungen und Einstellungen

Achtung:
- Vermeiden Sie den Laserstrahl direkt anzublicken oder zu berühren, weil hohe Gefahr besteht. (Laserstrahlen sind unsichtbar). Während die CD-Einheit auf ON geschaltet ist, werden Laserstrahlen aus der Aufnahmelinse emitiert. Vermeiden Sie direkte Aussetzung von den Laserstrahlen besonders bei Einstellungsoperationen.

Vorbereitung

1. Beseitigen Sie das Kabinett (Siehe Ref. Nr. 1 des Wartungshandbuchs).
2. Beseitigen Sie den CD-Klemmer und Magnet (Siehe Ref. Nr. 2 des Wartungshandbuchs).
3. Beseitigen Sie den CD-Plattenhalter und Stromschalterstab (Siehe Ref. Nr. 3 des Wartungshandbuchs).
4. Setzen Sie die Test-CD-Platte und Magnet auf die Drehplatte.
5. Schalten Sie die CD-Einheit auf ON.
6. Drücken Sie zuerst den OPEN/CLOSE Schalter S102 in Pfeilrichtung, und danach (innerhalb von 4 Sekunden) drücken Sie den Schalter S101 in Pfeilrichtung, wie abgebildet.

Meßinstrumente und Fachgeräte
- Servoverstärkerregler (SZZP1017F oder SZZP1094C)
- Test-CD Platte

1. Test-CD-Platte (SZZP1054C oder SZZP1014F)
2. Unregelmäßige Test-CD-Platte (SZZP1056C)
3. Schwarzbandtest-CD-Platte (SZZP1057C)

- Normale CD-Platte
- Doppelstrahloszilloskop mit 30 MHz Bandbreite oder höher (zusammen mit EXT Auslöser und 1:1 Sonde)
- Tonfrequenzoszillator (AF)
- Konversionsanschluß (SZZP1032F)
- Allen Schraubendreher (M2,0)
- Allen Schraubendreher (M1,27)
- 0,9 mm Umgrenzungslehre (RZZ0297)

Führen Sie die Einstellungen an den Teilen die ersetzt werden wie folgend durch:

(1) Spindelmoter ..... Teile 1,3 bis 8
(2) Drehplatte ..... Teile 1,3 bis 8
(3) Optischer Tonabnehmer .... Teile 2 bis 8

Einstellungsverfahren
- Falls Sie den Spindelmotor oder die Drehplatte ersetzt haben, gehen Sie wie folgend durch:

(1) Einstellung des Zwischenraumes der Drehplatte

1. Setzen Sie die 0,9 mm Umgrenzungslehre (RZZ0297) zwischen der Drehplatte und der CD-Empfangsgrundplatte (Siehe Abbildung rechts).
2. Ziehen Sie die Schraube der Drehplatte mit dem 1,27 mm Allen Schraubendreher fest.
3. Schließen Sie die CH. 1 Prüfungssonde des Oszilloskops durch die Terminale VR104 FEG (+) und durch VR106 V.REF (−) über einen Filter an.
   (Anmerkung: Eine Voltzahl von 2,5 V befindet sich am Terminal V. REF. Bitte achten Sie darauf, daß Sie das Chassis der CD-Einheit mit dem Oszilloskop nicht berühren um einen Kurzschluß zu vermeiden).
   Einstellung des Oszilloskops:
   VOLT ..... 50 mV
   SWEEP ..... 1 ms.
   Eingabekopplung .... DC
4. Stellen Sie den DC Nullausgleich des Oszilloskops ein.
5. Schalten Sie den Plattenspieler auf **ON** und spielen Sie die Test-CD-Platte SZZP1014F oder SZZP1054C ab.
6. Messen Sie die Spannungsamplitude der Signal auf dem Oszilloskop ab.

Anmerkung 1. Falls die bemessene Amplitude zwischen den Werten von +/− 15 mV sich bewegt, liegt die höhe der Drehplatte richtig. Falls die Amplitude außer den oben genannten Werten liegt, stellen Sie die Höhe der Drehplatte mit Hilfe der Umgrenzungslehre ein.

Falls die Amplitude +15 mV überschreitet, setzen Sie die Drehplatte etwas herab.

Falls die Amplitude −15 mV unterschreitet, setzen Sie die Drehplatte etwas herauf.

Anmerkung 2. Falls die bemessene Amplitude weit über oder unter den oben benannten Werte übertrifft, setzen Sie **VR105** genau oder in der Nähe der Mitte und versuchen Sie erneut die Höhe einzustellen (Vergewissern Sie sich, daß Sie gleichzeitig die Fokusausweichung mit einstellen sollen).

(2) Mechanische Einstellung

1. Schließen Sie die CH. 1 Prüfungssonde des Oszilloskops durch TJ101 (+) und durch TJ102 (−) des Servos P.C.B. and.
   Einstellung des Oszilloskops:
   VOLT..... 100 mV
   SWEEP..... 0,5 µs.
   Eingabekopplung .... AC
2. Schalten Sie den Plattenspieler auf **ON** und spielen Sie die Spur 9 auf der Test-CD-Platte (SZZP1056C).
3. Stellen Sie die CD-Einheit im Betriebsmodus und setzen Sie die Einheit wie rechts abgebildet.
4. Stellen Sie beide mechanische Einstellungsschrauben mit dem 2,0 mm Allen-Schraubendreher abwechselnd ein, bis die Amplitudevariation der RF-Signale des Oszilloskops auf das Minimum gebracht wird.
5. Nach der Einstellung, verschließen Sie die mechanische Einstellungen mit dem Siegellack RZZOL01 dicht ab.

(3) "BEST EYE" (PD Ausgleich) Einstellung

1. Schließen Sie die CH. 1 Prüfungssonde des Oszilloskops durch TJ101 (+) und durch TJ102 (−) des Servos P.C.B. an.
   Einstellung des Oszilloskops:
   VOLT..... 100 mV (CH. 1)
   SWEEP..... 0.5 ms.
   Eingabekopplung .... AC
2. Schalten Sie den Plattenspieler auf **ON** und spielen Sie den 0,5 mm schwarzen Punkt auf der Test-CD-Platte SZZP1014F oder SZZP1054C ab.
3. Stellen Sie den **VR101** bis die RF-Signalaugenmusteramplitude maximal liegt.

4) Fokusstärkeeinstellung

1. Schließen Sie die Servoverstärkerregelung an dem CD-Plattenspieler an. (Siehe Seite 7.)
2. Setzen Sie den Verstärkungsschalter der Servoverstärkerregelung auf Position **"2"** ein und den ON/OFF Schalter auf **ON**.
3. Setzen Sie die Oszillatorausgabe für **825 Hz, 150 mVp-p**, und schliessen Sie diesen an den OSC und GND Terminale des Servoverstärkerreglers an.
4. Schließen Sie die CH. 1 und CH. 2 Prüfungssonden des Oszilloskops an die entsprechenden Terminale der Servoverstärkerreglers TP1 und TP2 an. (TP3 ist Erde)
   Einstellung des Oszilloskops:
   VOLT..... 100 mV
   SWEEP..... 1 ms.
   Eingabekopplung .... AC
5. Spielen Sie die Test-CD-Platte (SZZP1014F oder SZZP1054C) ab.
6. Setzen Sie den Verstärkungsschalter der Servoverstärkerregelung auf Position **"3"** ein um eine 825 Hz-Signal auf dem Oszilloskop sehen zu können. Stellen Sie den **VR104** ein bis die Signalamplitude an beide kanäle gleich werden.
7. Setzen Sie den Verstärkungsschalter zur Position **"2"** wieder ein.

(5) Spurstärkeeinstellung

1. Setzen Sie die Oszillatorausgabe für **1,1 kHz, 150 mVp-p**, und schließen Sie diesen an den OSC und GND Terminale des Servoverstärkerreglers.
2. Schließen Sie die CH. 1 und CH. 2 Prüfungssonden des Oszilloskops an die entsprechenden Terminale der Servoverstärkerreglers TP1 und TP2. (TP3 ist Erde)
   Einstellung des Oszilloskops:
   VOLT..... 100 mV
   beide Kanäle
   SWEEP..... 1 ms.
   Eingabekopplung .... AC
3. Schalten Sie den Plattenspieler auf **ON** und spielen Sie die Test-CD-Platte SZZP1014F oder SZZP1054C ab.
4. Setzen Sie den Verstärkungsschalter der Servoverstärkerregelung auf Position **"1"** ein und Sie werden eine 1.1 kHz-Signal auf dem Oszilloskop sehen. Stellen Sie den **VR102** ein bis die Signalamplitude an beide Kanäle gleich werden.
5. Setzen Sie den Verstärkungsschalter an Position **"2"** wieder ein.

(6) Einstellung der Fokusausweichung

Anmerkung: Vergewissern Sie sich, daß der Verstärkungsschalter der Servoverstärkerregelung sich in Position **"2"** befindet.

1. Schließen Sie die CH. 1 Prüfungssonde des Oszilloskops durch TJ101 (+) und durch TJ102 (−) des Servos P.C.B. und die CH. 2 Sende (+) mit dem FEG Terminal des VR104 an.
   Einstellung des Oszilloskops:
   VOLT..... 100 mV (CH. 1)
   SWEEP..... 0,5 ms.
   Eingabekopplung .... AC (beide CH. 1 und CH. 2)
   Auslösermodus ..... NORM (Auslöser CH. 1)
2. Schalten Sie den Plattenspieler auf **ON** und spielen Sie die Spur No. **9** auf der Test-CD-Platte SZZP1057C ab.
3. Lösen Sie die Sonde CH. 1 des Oszilloskops in solcher Weise, daß folgende Wellenformen beobachtet werden können. Stellen Sie den **VR105** ein bis die Inklination der Hülle des RF-Signals der CH. 1 sanft herabsagt und die Signalamplitude der CH. 2 auf das Minimum konnt, d.h., daß der Wert der Amplitude A den von Amplitude B entspricht.

(7) Einstellung der Spurausweichung

Anmerkung: Vergewissern Sie sich, daß der Verstärkungsschalter der Servoverstärkerregelung sich in Position **"2"** befindet.

1. Sehließen Sie die CH. 1 Prüfungssonde des Oszilloskops durch TJ101 (+) und durch TJ102 (−) des Servos P.C.B. und die CH. 2 Sonde (+) mit, dem FEG Terminal des VR102 an.
   Einstellung des Oszilloskops:
   VOLT..... 100 mV (CH. 1)
   200 mV (CH. 2)
   SWEEP..... 0,5 ms.
   Eingabekopplung .... AC (beide CH. 1 und CH. 2)
   Auslösermodus ..... NORM (Auslöser CH. 1)
2. Schalten Sie den Plattenspieler auf **ON** und spielen Sie die Spur No. **9** auf der Test-CD-Platte SZZP1057C ab.
3. Lösen Sie die Sonde CH. 1 des Oszilloskops in solcher Weise, daß folgende Wellenformen beobachtet werden können. Stellen Sie den **VR103** ein bis die Inklination der Hülle des RF-Signals der CH. 1 sanft herabsagt und die Signalamplitude der CH. 2 auf das Minimum kommt d. H., daß der Wert der Amplitude A den von Amplitude B entspricht.

(8) Spurausgleicheinstellung

1. Vergewissern Sie sich, daß der Verstärkungsschalter der Servoverstärkerrogelung sich in Position **"2"** befindet.
2. Stellen Sie die AF-Oszillatorausgabe für **1,1 kHz**, **600 mVp-p** ein, und schließen Sie den Oszillator an die OSC und GND Terminale der Servoverstärkerregelung an.
3. Schließen Sie die CH. 1 Prüfungssonde des Oszilloskops durch TJ101 (+) und durch TJ102 (−) des Servos P.C.B. und die CH. 2 Sonde (+) mit dem OSC Terminal der Servoverstärkerregelung an.
   Einstellung des Oszilloskops:
   VOLT..... 100 mV (CH. 1)
   SWEEP..... 0,5 ms.
   Eingabekopplung .... AC (beide CH. 1 und CH. 2)
   Auslösermodus ..... NORM (Auslöser CH. 2)
4. Schalten Sie den Plattenspieler auf **ON** und spielen Sie die Test-CD-Platte SZZP1014F oder SZZP1054C ab.
5. Setzen Sie den Verstärkungsschalter der Servoverstärkerregelung auf Position **"1"** ein und stellen Sie **VR106** bis das Zittern der Signalwellenform auf CH. 1 auf das Minimum gebracht wird wie unten gezeigt.
6. Schalten Sie die Servoverstärkerregelungsanschlüsse von der CD-Einheit ab.

(9) Überprüfung der Betriebsoperation nach der Einstellung

•Überprüfung der Sprungsuchfunktion

1. Spielen Sie irgendeine Musik CD-Platte ab.
2. Drücken Sie die Sprungtaste um die normale Sprungsuchfunktion (vor- und rückwärts) zu überprüfen.

•Überprüfung der Handsuchfunktion

1. Spielen Sie irgendeine Musik CD-Platte ab.
2. Drücken Sie die Handsuchfunktionstaste um einwandfreie Handsuchfunktionen entweder bei hoher oder niedriger Geschwindigkeit, zu überprüfen.

•Überprüfung mit Benützung einer defektiven Test-CD-Platte

1. Spielen Sie die defektive Test-CD-Platte (SZZP1054C) an dem 0,9 mm schwarzen Punkt und an dem 0,7 mm Keil und prüfen Sie nach, daß weder Töne übergesprungen werden noch irgendeine Geräusche entstehen.
2. Spielen Sie die mittleren Spuren der unregelmäßigen defektiven Test-CD-Platte und prüfen Sie nach, daß weder Töne übergesprungen werden noch irgendeine Geräusche entstehen.

FRANÇAIS

REGLAGES ELECTRIQUES

■ Mesure et réglage

Attention:
- Il est très dangereux de voir ou de toucher le rayon laser. (Le rayonnement laser est invisible.)
  Une fois l'appareil mis sur la position "marche" (on), le rayon laser est émis de la lentille de la tête de lecture. Eviter donc l'exposition au rayon laser lors du réglage en particulier.

PREPARATION

1. Enlever le coffret (voir Ref. N° 1 dans le Manuel d'Entretien original).
2. Enlever le crampon de disque et l'aimant (voir Ref. N° 2 du même Manuel).
3. Enlever le support de disque et la tige d'interrupteur général (voir Ref. N° 2 du même Manuel).
4. Mettre le disque d'essai et l'aimant en place sur la platine tourne-disque.
5. Mettre le lecteur de disques sur la position "marche".
6. Pousser d'abord le commutateur ouverture/fermeture S102 dans la direction de la flèche, puis avant 4 secondes, pousser le commutateur S101 dans la direction de la flèche comme il est indiqué sur la figure.

Instruments de mesure et outils spéciaux
- Servorégleur de gain (SZZP1017F ou SZZP1094C)
- Disque d'essai

1. Disque d'essai de possibilité de lecture (SZZP1054C ou SZZP1014F)
2. Disque d'essai d'inégalité (SZZP1056C)
3. Disque d'essai de bande noire (SZZP1057C)
   - Disque normal
   - Oscilloscope double trace avec une largeur de bande de 30 MHz ou plus (avec déclencheur EXT et sonde 1:1)
   - Oscillateur pour audiofréquences (AF)
   - Connecteur de conversion (SZZP1032F)
   - Clef hexagonale (M2, 0)
   - Clef hexagonale (M1, 27)
   - Calibre de tolérance de 0,9 mm (RZZ0297)

Le réglage doit être effectué selon la pièce remplacée, comme il est indiqué ci-dessous.

(1) Moteur à broche ..... Articles 1, 3 à 8
(2) Platine tourne-disque ..... Articles 1, 3 à 8
(3) Tête de lecture optique ..... Articles 2 à 8

Procédure de réglage
- Après avoir remplacé le moteur à broche ou la platine tourne-disque, effectuer le réglage suivant:

(1) Réglage de hauteur de platine tourne-disque

1. Introduire le calibre de tolérance de 0,9 mm (RZZ0297) entre la platine tourne-disque et la base de charge (voir la figure à droite).
2. Serrer la vis de fixation de platine tourne-disque à l'aide de la clef hexagonale de 1,27 mm.
3. Raccorder les bornes FEG (+) de VR104 et V.REF (−) de VR106 de la sonde de voie 1 (CH. 1) de l'oscilloscope par un filtre.
   (Remarque: Une tension de 2,5 V apparaît à la borne V.REF. Veiller donc à ne pas court-circuiter le châssis du lecteur de disques et la terre de l'oscilloscope.)
   Réglage de l'oscilloscope:
   Tension (VOLT) ..... 50 mV
   Dent de scie (SWEEP) ..... 1 ms.
   Couplage d'entrée ..... courant continu
4. Régler la balance nulle à courant continu de l'oscilloscope.
5. Mettre le lecteur de disques sur la position "marche" **(ON)**, et commencer à lire le disque d'essai (SZZP1014F ou SZZP1054C).
6. Mesurer l'amplitude de tension du signal sur l'oscilloscope.

Remarque 1. Si l'amplitude mesurée est dans une fourchette de +/− 15 mV, la hauteur de platine tourne-disque est correcte. Par contre, si elle est en dehors de cette fourchette, régler la hauteur de platine tourne-disque en utilisant le calibre de tolérance comme un levier.

Si l'amplitude dépasse +15 mV, abaisser la platine tourne-disque.
Si l'amplitude est inférieure à −15 mV, élever la platine tourne-disque.

Remarque 2. Si l'amplitude mesurée est largement supérieure ou inférieure à la fourchette mentionnée ci-dessus, régler VR105 au centre ou à ses environs, puis essayer de nouveau de régler la hauteur. (Ne pas omettre alors de régler également le foyer.)

(2) Réglage mécanique

1. Raccorder les bornes TJ101 (+) et TJ102 (−) de la sonde de voie 1 (CH. 1) de l'oscilloscope sur la plaquette de circuit imprimé auxiliaire.
   Reglage de l'oscilloscope:
   Tension (VOLT) ..... 100 mV
   Dent de scie (SWEEP)..... 0,5 ms.
   Couplage d'entrée ..... courant alternatif
2. Mettre le lecteur de disques sur la position "marche" **(ON)**, et commencer à lire la voie **9** du disque d'essai (SZZP1058C).
3. Laisser le lecteur de disques en mode de lecture (PLAY), et le mettre en place comme il est indiqué sur la figure à droite.
4. Régler alternativement les deux vis de réglage mécanique à l'aide de la clef hexagonale de 2,0 mm jusqu'à ce que la variation d'amplitude de signaux de radiofréquence sur l'oscilloscope soit minimisée.

(3) Réglage de la meilleure mire (balance PD)

1. Raccorder les bornes TJ101 (+) et TJ102 (−) de la sonde de voie 1 (CH. 1) de l'oscilloscope sur la plaquette de circuit imprimé auxiliaire.
   Réglage de l'oscilloscope:
   Tension (VOLT) ..... 100 mV
   Dent de scie (SWEEP) ..... 0,5 ms.
   Couplage d'entrée ..... courant alternatif
2. Mettre le lecteur de disques sur la position "marche" **(ON)**, et commencer à lire le point noir de 0,5 mm sur le disque d'essai (SZZP1014F ou SZZP1054C).
3. Régler **VR101** jusqu'à ce que l'amplitude de mire de signaux de radiofréquence soit maximisée.

(4) Réglage du gain de foyer

1. Raccorder le servorégleur de gain au lecteur de disques (voir page 7).
2. Mettre le commutateur de gain du servorégleur de gain sur la position **"2"** et l'interrupteur marche/arrêt sur la position "marche" **(ON)**.
3. Régler la puissance de sortie de l'oscillateur pour audiofréquences sur **825 Hz, 150 mVp.p**, et raccorder les bornes OSC (oscillateur) et GND (terre) de ce dernier sur le servorégleur de gain.
4. Raccorder respectivement les sondes de la voie 1 (CH. 1) et la voie 2 (CH. 2) de l'oscilloscope aux bornes TP1 et TP2 du servorégleur de gain [TP3 est la terre (GND)].
   Réglage de l'oscilloscope:
   Tension (VOLT) ..... 100 mV (pour les deux voies)
   Dent de scie (SWEEP) ..... 1 ms.
   Couplage d'entrée ..... courant alternatif
5. Commencer à lire le disque d'essai (SZZP1014F ou SZZP1054C).
6. Mettre le commutateur de gain du servorégleur de gain sur la position **"3"**. Un signal de 825 Hz sera alors observé sur l'oscilloscope. Régler **VR104** jusqu'à ce que les amplitudes de signaux des deux voies soient identiques l'une à l'autre.
7. Remettre le commutateur de gain sur la position **"2"**.

(5) Réglage du gain de piste

1. Régler la puissance de sortie de l'oscillateur pour audiofréquences sur **1,1 kHz**, **150 mVp.p**, et raccorder les bornes OSC (oscillateur) et GND (terre) de ce dernier sur le servorégleur de gain.
2. Raccorder respectivement les sondes de la voie 1 (CH. 1) et la voie 2 (CH. 2) de l'oscilloscope aux bornes TP1 et TP2 du servorégleur de gain [TP3 est la terre (GND)].
   Réglage de l'oscilloscope:
   Tension (VOLT) ..... 100 mV (pour les deux voies)
   Dent de scie (SWEEP) ..... 1 ms.
   Couplage d'entrée ..... courant alternatif
3. Mettre le lecteur de disques sur la position "marche" **(ON)**, et commencer à lire le disque d'essai (SZZP1014F ou SZZP1054C).
4. Mettre le commutateur de gain du servorégleur de gain sur la position **"1"**. Un signal de 1,1 kHz sera alors observé sur l'oscilloscope. Régler **VR102** jusqu'à ce que les amplitudes de signaux des deux voies soient identiques l'une à l'autre.
5. Remettre le commutateur de gain sur la position **"2"**.

(6) Réglage de décalage de foyer

Remarque: S'assurer que le commutateur de gain du servorégleur de gain est mis sur la position **"2"**.

1. Raccorder les bornes TJ101 (+) et TJ102 (−) de la sonde de voie 1 (CH. 1) de l'oscilloscope sur la plaquette de circuit imprimé auxiliaire, et raccorder également la sonde de voie 2. (CH. 2) et la borne FEG de VR104.
   Réglage de l'oscilloscope:
   Tension (VOLT) ..... 100 mV (voie 1)
   100 mV (voie 2)
   Dent de scie (SWEEP) ..... 0,5 ms.
   Couplage d'entrée ..... courant alternatif (pour les deux voies)
   Mode de déclenchement .... NORM (voie 1 de déclenchement)
2. Mettre le lecteur de disques sur la position "marche" **(ON)**, et commencer à lire la voie **9** du disque d'essai (SZZP1057C).
3. Déclencher la voie 1 (CH. 1) de l'oscilloscope pour que les formes d'onde suivantes soient observées. Régler **VR105** jusqu'à ce que l'inclinaison dans l'enveloppe de signaux de radiofréquence sur la voie 1 (CH. 1) soit en douceur et que l'amplitude de signaux de la voie 2 (CH. 2) soient minimisée, c'est-à-dire que l'amplitude A soit égale à celle B.

(7) Réglage de décalage de voie

Remarque: S'assurer que le commutateur de gain du servorégleur de gain est mis sur la position **"2"**.

1. Raccorder les bornes TJ101 (+) et TJ102 (−) de la sonde de voie 1 (CH. 1) de l'oscilloscope sur la plaquette de circuit imprimé auxiliaire, et raccorder également la sonde de voie 2. (CH. 2) et la borne TEG de VR102.
   Réglage de l'oscilloscope:
   Tension (VOLT) ..... 100 mV (voie 1)
   200 mV (voie 2)
   Dent de scie (SWEEP) ..... 0,5 ms.
   Couplage d'entrée ..... courant alternatif (pour les deux voies)
   Mode de déclenchement .... NORM (voie 1 de déclenchement)
2. Mettre le lecteur de disques sur la position "marche" **(ON)**, et commencer à lire la voie **9** du disque d'essai (SZZP1057C).
3. Déclencher la voie 1 (CH. 1) de l'oscilloscope pour que les formes d'onde suivantes soient observées. Régler **VR103** jusqu'à ce que l'inclinaison dans l'eveloppe de signaux de radiofréquence sur la voie 1 (CH. 1) soit en douceur et que l'amplitude de signaux de la voie 2 (CH. 2) soient minimisée, c'est-à-dire que l'amplitude A soit égale à celle B.

(8) Réglage de balance de voie

1. S'assurer que le commutateur de gain du servorégleur de gain est mis sur la position **"2"**.
2. Régler la puissance de sortie de l'oscillateur pour audiofréquences sur **1,1 kHz**, **600 mVp.p**, et raccorder les bornes OSC (oscillateur) et GND (terre) de ce dernier sur le servorégleur de gain.
3. Raccorder les bornes TJ101 (+) et TJ102 (−) de la sonde de voie 1 (CH. 1) de l'oscilloscope sur la plaquette de circuit imprimé auxiliaire, et raccorder également la sonde de voie 2. (CH. 2) et la borne OSC sur le servorégleur de gain.
   Réglage de l'oscilloscope:
   Tension (VOLT) ..... 100 mV (voie 1)
   Dent de scie (SWEEP) ..... 0,5 ms.
   Couplage d'entrée ..... courant alternatif (pour les deux voies)
   Mode de déclenchement .... NORM (voie 2 de déclenchement)
4. Mettre le lecteur de disques sur la position "marche" **(ON)**, et commencer à lire le disque d'essai (SZZP1014F ou SZZP1054C).
5. Mettre le commutateur de gain du servorégleur de gain sur la position **"1"**, et régler **VR106** jusqu'à ce que le vacillement contenu dans la forme d'onde de la voie 1 (CH. 1) soit minimisé comme il est indiqué ci-dessous.
6. Débrancher les conducteurs du servorégleur de gain du lecteur de disques.

(9) Contrôle de fonctionnement de lecture après réglage

•Contrôle de la recherche par sauts

1. Lire un disque de programme musical ordinaire.
2. Appuyer sur la touche de saut pour contrôler le fonctionnement normal de recherche par sauts (dans les directions vers l'avant et vers l'arrière).

•Contrôle de la recherche manuelle

1. Lire un disque de programme musical ordinaire.
2. Appuyer sur la touche de recherche manuelle pour contrôler le fonctionnement normal de recherche manuelle à vitesse réduite ou élevée (dans les directions vers l'avant et vers l'arrière).

•Contrôle de l'utilisation d'un disque défectueux

1. Lire le point noir de 0,7 mm et le coin de 0,7 mm sur le disque d'essai défectueux (SZZP1054C), et vérifier qu'il ne se produit aucun saut sonore ou bruit.
2. Lire les voies du milieu du disque d'essai inégal, et vérifier qu'il ne se produit aucun saut sonore ou bruit.

ESPAÑOL

AJUSTE ELECTRICO

■ MEDICIONES Y AJUSTES

Precaución:

•Es muy peligroso mirar directamente o tocar los rayos de láser (Las radiaciones de láser son invisibles.) Cuando el aparato está encendido las radiaciones de láser son emitidas desde el lente de captación. Evite exponerse a los rayos de láser, especialmente mientras realice los ajustes.

PREPARACION

1. Quite la cabina (ver el número de referencia 1 en el manual de servicio original).
2. Quite el freno del disco y el imán (ver el número de referencia 2 del mismo manual).
3. Quite el soporte del disco y la barra del interruptor de corriente (ver el número de referencia 3 del mismo manual).
4. Coloque el disco de prueba e imán en el tornamesa.
5. Encienda el aparato.
6. Primero empuje el conmutador OPEN/CLOSE (S102) en la dirección de la flecha y luego, dentro de un lapso de 4 segundos, empuje el conmutador S101 en la dirección de la flecha como se muestra en la figura.

Instrumentos de medición y herramientas especiales

•Ajustador de servoganancia (SZZP1017F o SZZP1094C)
•Discos de prueba
1. Disco para pruebas de reproducción (PLAY) (SZZP1054C o SZZP1014F).
2. Disco de superficie no uniforme para pruebas (SZZP1056C).
3. Disco de banda negra para pruebas (SZZP1057C)

•Disco normal
•Osciloscopio de dos canales con amplitud de banda de 30 MHz o mejorada (con "disparador" EXT y sonda de 1:1)
•Oscilador de frecuencia de audio (FA)
•Conector de conversión (SZZP1032F)
•Llave Allen (M2.0)
•Llave Allen (M1.27)
•Calibrador de 0.9 mm (RZZ0297)

Los ajustes a ejecutar dependen de las partes a ser remplazadas de acuerdo a lo siguiente:

(1) Motor del eje ..... Items 1, y del 3 al 8
(2) Tornamesa ..... Items 1, y del 3 al 8
(3) Captador óptico ..... Items del 2 al 8

Procedimiento de ajuste

•Si ha remplazado el motor del eje o tornamesa, realice los siguientes ajustes:

(1) AJUSTE DE LA ALTURA DEL TORNAMESA

1. Introduzca el calibrador de 0.9 mm (RZZ0297) entre el tornamesa y la base de carga (ver la figura a la derecha).
2. Ajuste el tornillo de retención del tornamesa con la llave Allen de 1.27 mm.
3. Conecte la sonda CH.1 del osciloscopio al FEG (+) del VR104 y el V.REF (−) del VR106 mediante un filtro. (Nota: Un voltaje de 2.5 voltios aparecerá en el terminal V.REF. Tener cuidado de que no se establezca un corto circuito entre el chasis del aparato y el conductor de tierra del osciloscopio).
   Ajustes en el osciloscopio:
   Voltaje ..... 50 mV
   "Sweep" ..... 1 ms
   "Coupling" de entrada ..... CD
4. Ajuste el balance cero DC del osciloscopio.
5. Encienda el aparato y reproduzca el disco de prueba (SZZP1014F o SZZP1054C).
6. Mida la amplitud del voltaje de la señal en el osciloscopio.

Nota 1. Si la amplitud medida está en el rango de +/− 15 mV, la altura del tornamesa es correcta. Si está fuera de este rango, ajuste la altura del tornamesa usando el calibrador como palanca.
Si la amplitud excede los +15 mV, baje el tornamesa.
Si la amplitud es menor de −1 mV, eleve el tornamesa.
Nota 2. Si la amplitud medida, sobrepasa o está muy por debajo del rango arriba indicado, coloque el VR105 en o cerca del centro, y luego trate de ajustar la altura de nuevo.
(Luego ajuste la compensación del foco.)

(2) AJUSTES MECANICOS

1. Conecte la sonda CH1 del osciloscopio al TJ101 (+) y TJ102 (−) en el P.C.B. Servo.
   Ajustes en el osciloscopio:
   Voltaje ..... 100 mV
   "Sweep" ..... 0.5 µs.
   "Coupling" de entrada ..... CA
2. Encienda el aparato, y reproduzca la banda 9 en el disco de prueba (SZZP1056C).
3. Con el aparato en el modo de reproducción, colóquelo en la posición indicada en la figura de la derecha.
4. Ajuste de manera alternada los dos tornillos de ajuste mecánicos con la llave Allen de 2.0 mm hasta que la señal RF de la variación de amplitud en el osciloscopio sea mínima.
5. Despues de completar los ajustes, selle los ajustes mecánicos con la pintura RZZOL01.

(3) AJUSTE VISUAL OPTIMO (EQUILIBRIO DE PD)

1. Conecte la sonda CH.1 del osciloscopio al TJ101 (+) y TJ102 (−) en el P.C.B. Servo.
   Ajustes en el osciloscopio:
   Voltaje ..... 100 mV
   "Sweep" ..... 0.5 µs.
   "Coupling" de entrada ..... CA
2. Encienda el aparato y reproduzca el punto negro de 0.5 mm del disco de prueba (SZZP1014F O SZZP1054C).
3. Ajuste el **VR101** hasta que la amplitud del patrón de "ojo" de la señal RF sea máxima.

(4) AJUSTE DE LA GANANCIA DE ENFOQUE

1. Conecte el ajustador de servoganancia al aparato (ver la página 7).
2. Coloque el conmutador del ajustador de ganancia en la posición **"2"** y el interruptor ON/OFF en **ON**.
3. Ajuste la emisión del oscilador AF en **825 Hz, 150 mVp-p** y conéctelo a los terminales OSC y GND del ajustador de ganancia del servo.
4. Conecte las sondas CH.1 y CH.2 del osciloscopio a los terminales TP1 y TP2 del ajustador de servoganancia respectivamente (el TP3 es para tierra).
   Ajuste en el osciloscopio:
   Voltaje ..... 100 mV (ambos canales)
   "Sweep" ..... 1 ms
   "Coupling" de entrada ..... CA
5. Reproduzca el disco de prueba (SZZP1014F o SZZP1054C).
6. Coloque el conmutador del ajustador de ganancia en la posición **"3"** y verá una señal de 825 Hz en el osciloscopio. Ajuste el **VR104** hasta que las amplitudes de la señal en ambos canales sean idénticas unas a otras.
7. Coloque otra vez el conmutador de ganancia en la posición **"2"**.

(5) AJUSTE DE LA GANANCIA DEL SEGUIMIENTO (TRACKING)

1. Ajuste la salida del oscilador de FA en **1.1 kHz. 150 mVp-p** y conéctelo a los terminales OSC y GND del ajustador de servoganancia.
2. Coloque las sondas CH. 1 y CH. 2 del osciloscopio en los terminales TP1 y TP2 del ajustador de ganancia, respectivamente (el TP3 es de tierra).
   Ajustes en el osciloscopio:
   Voltaje ..... 100 mV (ambos canales)
   "Sweep" ..... 1 ms
   "Coupling" de entrada ..... CA
3. Encienda el aparato y reproduzca el disco de prueba (SZZP1014F o SZZP1054C).
4. Coloque el conmutador del ajustador de ganancia en la posición **"1"** verá una señal de 1,1 kHz en el osciloscopio. Ajuste el **VR102** hasta que las amplitudes de la señal en ambos canales sean idénticas unas a otras.
5. Coloque otra vez el conmutador de ganancia en la posición **"2"**.

(6) AJUSTE DE LA COMPENSACION DEL ENFOQUE

Nota: Asegúrese de que el conmutador del ajustador de servoganancia esté colocado en la posición **"2"**.

1. Conecte la sonda CH. 1 del osciloscopio al TJ101 (+) y TJ102 (−) del P.C.B. Servo y la sonda CH. 2 (+) al terminal FEG del VR104.
   Ajustes en el osciloscopio:
   Voltaje ..... 100 mV (CH. 1)
   100 mV (CH. 2)
   "Sweep" ..... 0,5 ms
   "Coupling" de entrada ..... CA
   (ambos canales 1 y 2)
   Modalidad de disparo ..... NORMAL
   (disparo del CH. 1)
2. Encienda el aparato y reproduzca la banda **9** del disco de prueba (SZZP1057C).
3. Dispare el CH. 1 del osciloscopio de tal manera que las siguientes ondas aparezcan. Ajuste el **VR103** hasta que la base de la envoltura de la señal RF en el CH. 1 sea uniforme y la amplitud de la señal en el CH. 2 sea mínima, es decir, cuando la amplitud A sea igual a la amplitud B.

(7) AJUSTE DE LA COMPENSACION DEL SEGUIMIENTO (TRACKING)

Nota: Asegúrese de que el conmutador del ajustador de servoganancia esté colocado en la posición **"2"**.

1. Conecte la sonda CH. 1 del osciloscopio al TJ101 (+) y TJ102 (−) del P.C.B. Servo y la sonda CH. 2 (+) al terminal TEG del VR102.
   Ajustes en el osciloscopio:
   Voltaje ..... 100 mV (CH. 1)
   200 mV (CH. 2)
   "Sweep" ..... 0,5 ms
   "Coupling" de entrada ..... CA
   (ambos canales 1 y 2)
   Modalidad de disparo ..... NORMAL
   (disparo del CH. 1)
2. Encienda el aparato y reproduzca la banda **9** del disco de prueba (SZZP1057C).
3. Dispare el CH. 1 del osciloscopio de tal manera que las siguientes ondas aparezcan. Ajuste el **VR103** hasta que la base de la envoltura de la señal RF en el CH. 1 sea uniforme y la amplitud de la señal en el CH. 2 sea mínima, es decir, cuando la amplitud A sea igual a la amplitud B.

(8) AJUSTE DEL BALANCE DEL SEGUIMIENTO (TRACKING)

1. Asegúrese de que el conmutador del ajustador de servoganancia esté colocado en la posición **"2"**.
2. Ajuste la salida del oscilador de FA en **1,1 kHz, 600 mVp-p** y conéctelo a los terminales OSC y GND del ajustador de servoganancia.
3. Conecte la sonda CH. 1 del osciloscopio al TJ101 (+) y al TJ102 (−) del P.C.B. Servo y la sonda CH. 2 (+) al terminal OSC del ajustador de servoganancia.
   Ajustes en el osciloscopio:
   Voltaje ..... 100 mV (CH. 1)
   "Sweep" ..... 0.5 ms
   "Coupling" de entrada ..... CA
   (ambos canales 1 y 2)
   Modalidad de disparo ..... NORMAL
   (disparo del CH. 2)
4. Encienda el aparato, y reproduzca el disco de prueba (SZZP1014F o SZZP1054C).
5. Coloque el conmutador del ajustador de servoganancia en la posición **"1"** y ajuste el **VR106** hasta que las irregularidades de las ondas de la señal en el CH. 2 sea mínima como se muestra más abajo.
6. Desconecte el ajustador de servoganancia del aparato.

(9) COMPROBACION DE LA FUNCION DE REPRODUCCION DESPUES DE LOS AJUSTES

•Comprobación de la localización de salto

1. Reproduzca un disco de programa musical ordinario.
2. Presione el botón de salto para comprobar la función normal de localización de salto (en ambas direcciones, de avance y retroceso).

•Comprobación de la localización manual

1. Reproduzca un disco de programa musical ordinario.
2. Presione el botón de localización manual para comprobar las funciones de localización manual a velocidad lenta o alta (en ambas direcciones, de avance y retroceso).

•Comprobación mediante el empleo de un disco defectuoso

1. Reproduzca el punto negro de 0,7 mm y el patrón de "cuña" de 0,7 mm del disco defectuoso de prueba (SZZP1054C) y compruebe de que no ocurran saltos ni ruidos.
2. Reproduzca las bandas intermedias del disco de prueba de superficie no uniforme para pruebas y verique que no ocurran saltos ni ruidos.

Printed in Japan
F881223000 TW/TK

■PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780nM
Maximum output radiation power from pick up: 100μW/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laserd diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

Wellenlänge: 780nM
Maximale strahlungsleistung der lasereinheit: 100μW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

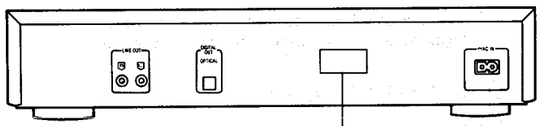
1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährliich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.

ADVARSEL: I dette a apparat anvendes laser.

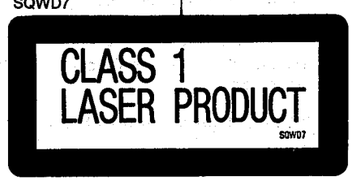
• Use of caution labels

Note: ○ Mark is used, × Mark is not used.

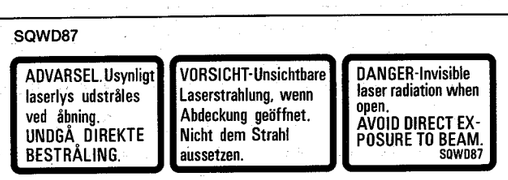
Areas	SQWD7	SQWD87	SQWD19
(PA, PE, PC)	×	○	○
Others	○	○	○



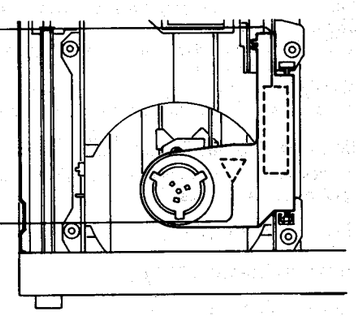
SQWD7



SQWD87


ADVARSEL. Usynligt laserlys udstråles ved åbning. UNDGÅ DIREKTE BESTRÅLING.
VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen.
DANGER-Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
SQWD87

Obs:
Apparaten innehåller laser
Komponent av höger laserklass
än klass 1.

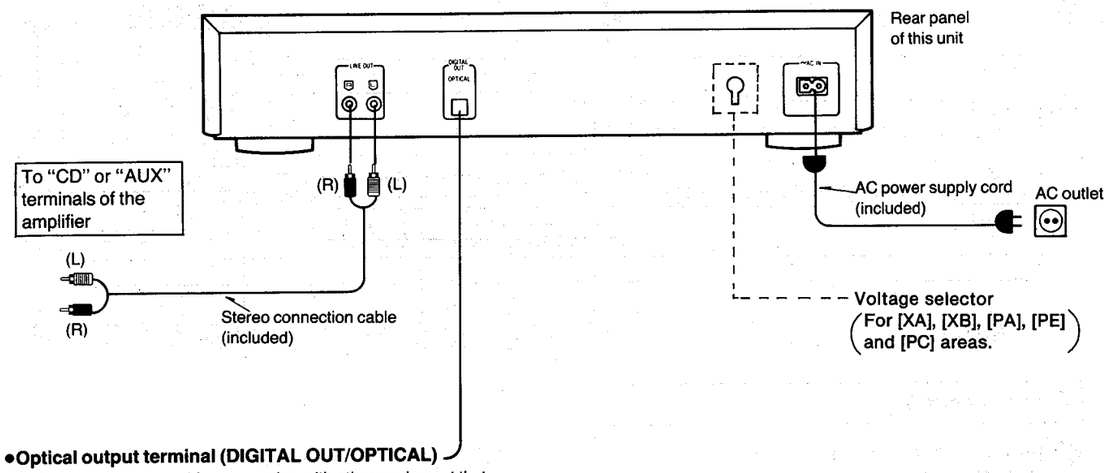


SQWD19

VAROITUS! Laite sisältää laserdiodin, joka lähettää näkymätöntä silmille vaarallista lasersäteilya

■ CONNECTIONS

Turn power off on all components before making connections.



●Optical output terminal (DIGITAL OUT/OPTICAL)
This terminal can be used for connection with other equipment that has a digital input terminal, such as an amplifier, by using an optical cable (optional). A dust-protection cap is inserted in this terminal. Remove this cap only when a connection is to be made to this terminal.

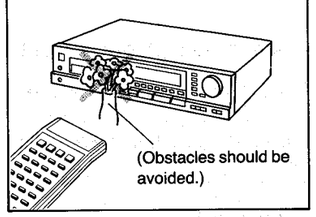
Note:
The configuration of the AC outlet and AC power supply cord differs according to area.

■ REMOTE CONTROL TRANSMITTER

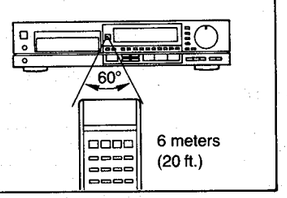
Remote control transmitter operation notes

Note that operation may not be correct if direct sunlight or other strong light strikes the remote control signal receptor part of this unit. If there is a problem, place the unit away from the direct sunlight or other strong light source.

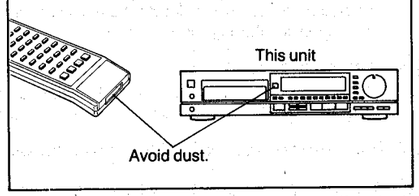
Face it toward the remote control signal receptor.



Use the remote control transmitter within 6 meters.



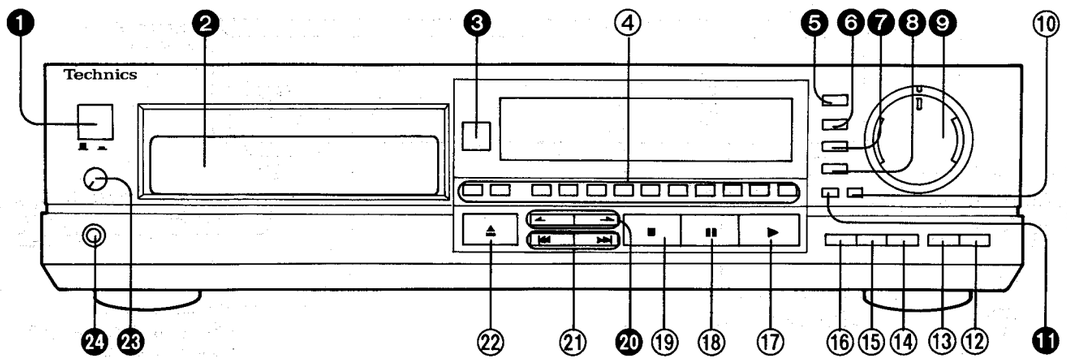
Be sure the transmitter part of the remote control transmitter and the receptor part of this unit are free from dust. Excessive dust might prevent reception.



Note: The control panel of the remote control transmitter may be covered by a clear plastic protective sheet. This sheet may be removed if desired.

■ LOCATION OF CONTROLS

The functions indicated by the black numbers (with white background, ④ etc.) can also be activated using the remote control transmitter.



Control section

❶ Power switch (power)

If a disc has already been loaded, play will begin when the power is turned ON.

❷ Disc holder

❸ Remote control signal sensor (remote sensor)

④ Numeric buttons (+10, 0, 1~10)

❺ Edit tape length button (edit tape length)

When compact discs are to be recorded to tape, this button can be used to calculate the number of tracks that can be recorded on each side of the tape, depending on the length of the cassette tape used, so that as little tape as possible is wasted.

❻ Tape-side select button (side A/B)

When recording compact discs to tape, this button can be used to check the number of tracks and amount of tape left over for side A or B.

❼ Disc link button (disc link)

This button can be used for edit recording from several discs.

❽ Peak level search button (peak search)

This button can be used to locate the maximum signal level (peak level) for the signals on the disc.

❾ Search dial (search)

This dial can be used to locate specific places on the disc during play at high speed, either forward or reverse.

⑩ Time mode select button (time mode)

⑪ Display mode select button (display mode)

⑫ Auto cue button (auto cue)

Pressing this button causes the unit to skip automatically to the beginning of the next track on the disc and switch to the play standby mode.

⑬ Repeat button (repeat)

⑭ Recall button (recall)

This button can be used to display the contents of the programmed track sequence for confirmation.

⑮ Clear button (clear)

This button can be used to clear tracks from the programmed sequence one at a time.

⑯ Programmed-play button (program)

Pressing this button initiates the programmed play mode. You can then enter specific tracks using the numeric buttons.

⑰ Play button (► play)

⑱ Pause button (❚❚ pause)

⑲ Stop button (■ stop)

This button can be used to stop disc play, as well as to cancel the various play modes.

⑳ Index skip buttons (⏮index/index⏭)

These buttons can be used to skip by index number (smaller divisions within specific tracks).

㉑ Skip buttons (⏮ skip/skip ⏭)

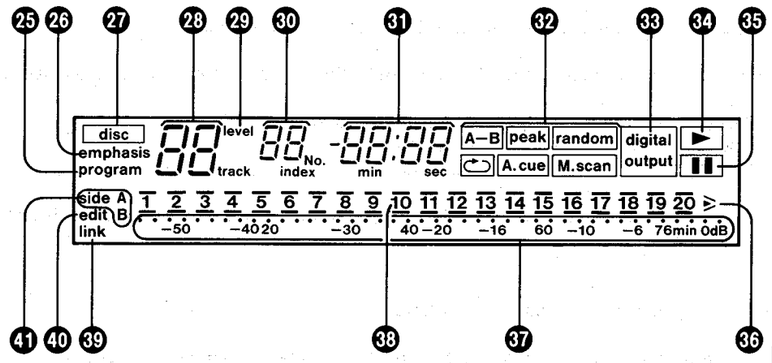
These buttons can be used to skip by track in the forward or reverse direction.

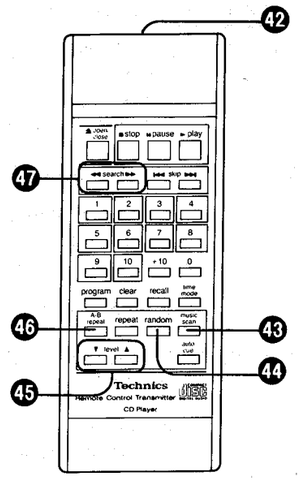
㉒ Disc holder open/close button (⏏ open/close)

㉓ Headphones volume control (phones level)

Avoid listening to music at high volume levels for extended periods of time.

㉔ Headphones jack (phones)





Unnumbered buttons on the remote control transmitter function identically to their corresponding parts on the unit.

Indicators section

㉕ Programmed-play indicator (program)

㉖ Emphasis indicator (emphasis)

This indicator illuminates when discs recorded with pre-emphasis in the high-frequency range are played.

㉗ Disc indicator (disc)

㉘ Track number display (track)

㉙ Level indicator (level)

This indicator lights when the output level is attenuated by the remote control.

㉚ Index/program number display (index/No.)

㉛ Time display (min/sec)

㉜ Operation indicators

The following indicators light during their respective operations.

A-B:	A-B repeat play (remote control operation)
peak:	Peak level search
random:	Random play (remote control operation)
⟲ :	Repeat play
A. cue:	Auto cue
M. scan:	Music scan (remote control operation)

㉝ Digital output indicator (digital output)

This indicator illuminates during normal operation to show that digital output is possible.

㉞ Play indicator (►)

㉟ Pause indicator (❚❚)

㊱ "Over" mark (≥)

This indicator lights if the total number of tracks on the disc is 21 or more.

㊲ Play position/output level indicator

This indicator toggles between its 2 modes each time the display mode select button is pressed.

㊳ Track number indicator (1–20)

㊴ Disc link indicator (link)

㊵ Compact disc edit indicator (edit)

㊶ Tape side indicator (side A/B)

Remote control transmitter

㊷ Remote control signal transmission window

㊸ Music scan button (music scan)

This button can be used to play the first part of each track in order.

㊹ Random play button (random)

This button can be used to play the tracks on a disc in a random sequence.

㊺ Level buttons (▼ level ▲)

These buttons can be used to control output level (from 0 dB to −12 dB), except for digital output.

㊻ A–B repeat button (A–B repeat)

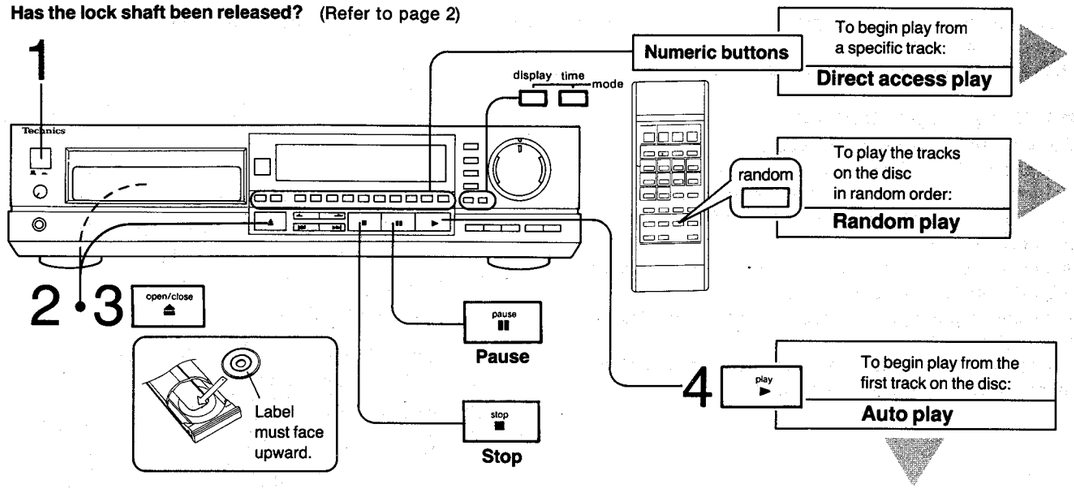
This button can be used to play the portion of a disc between two points (A and B) chosen by you.

㊼ Search buttons (◀◀ search ▶▶)

These buttons can be used to move rapidly forward or backward on the disc during play. The search speed is slow when the button is pressed at first and becomes faster if the button is pressed and held continuously.

■ BASIC OPERATION

Has the lock shaft been released? (Refer to page 2)



Auto play

Playing an entire disc from the first track to the last.

Basic operations such as turning the power ON and OFF are the same for the other play modes as well.

1 Press the power switch to turn power ON.

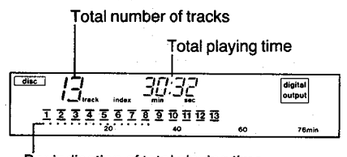
Turn down your amplifier volume first. If, inadvertently, the volume is set too loud, damage to your speakers could result.

Auto-start function
If a disc has already been loaded into the disc holder, play will begin right away when the power is turned ON. This is for timer play.

2 Press the open/close button to open the disc holder and insert a disc.

3 Press the open/close button again to close the disc holder.

The total number of tracks on the disc and the total playing time are displayed.



(The current play position is shown by a flashing indicator.)

4 Press the play button.

Disc play begins from the first track on the disc.

Index number
(For discs without index numbers, " / " will be continuously displayed.)
Track in play
Elapsed time
Play indicator

•The bars above and below the number of the track in play flash. They go out when play finishes.

•The unit stops automatically when the last track on the disc finishes playing. (The display returns to the total number of tracks and total playing time indications.)
•Switch power OFF when finished.

•To stop disc play, press the stop button.

The unit switches to the stop mode and the total number of tracks and total playing time are displayed.

•To temporarily stop disc play, press the pause button.

•Press the play button to play again.

Notes:
•Attempting to change discs while the disc holder is in the process of opening can scratch or damage your discs.
•Before attempting to use the remote control transmitter to open the disc holder, make sure that there are no obstructions in front of the unit (the closed glass door of an audio rack, etc.)
•The total playing time displayed includes the silent sections between tracks. For this reason, it may differ by a few seconds from the playing time printed in the disc's liner notes.

Direct access play

To listen to a disc from track 3, press the numeric button [3]
Play begins directly from track 3.

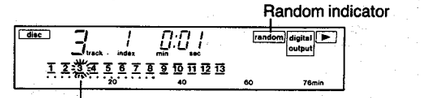
Choosing a specific track
Tracks 1–10: Press the appropriate numeric button [1] – [10] directly.
Tracks 11 and up: First press [+10], then [0] – [9].
(Press [+10] twice for 20, three times for 30, and so on.)

•Playback begins from the track selected and continues from subsequent tracks until the end of the disc is reached.
•The unit stops automatically when the last track on the disc finishes playing.

Random play
(by the remote control transmitter only)

All the tracks on the disc are played in a new, randomly selected order. The order is different every time. Listening to tracks in a different order can be a refreshing change of pace.

Press the random play button on the remote control transmitter.



(The bars above and below the number of the track in play flash. They go out when play finishes.)

•The unit stops automatically when all the tracks on the disc finish playing.

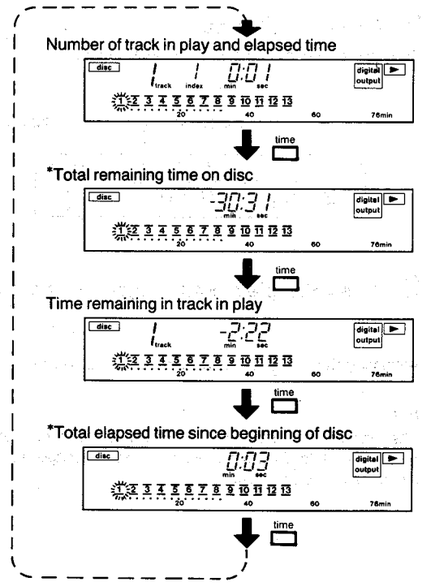
•To cancel random play while a disc is playing, press the random play button again.

When the track in play finishes playing, play continues from subsequent tracks in the normal order until the end of the disc is reached.

Changing the indications of the time mode display and bar indication.

Time display

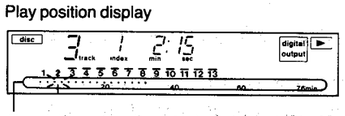
Each time the time mode select button is pressed during play or when the unit is in the pause mode switches the display among the following modes.



Bar indication

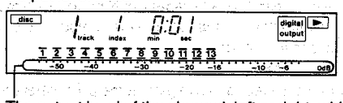
Pressing the display mode select button switches the play position display to an output level meter. (Press the display mode select button again to switch back).

Play position display



The place on the disc which is currently playing is shown by a flashing indicator. (min=minutes)

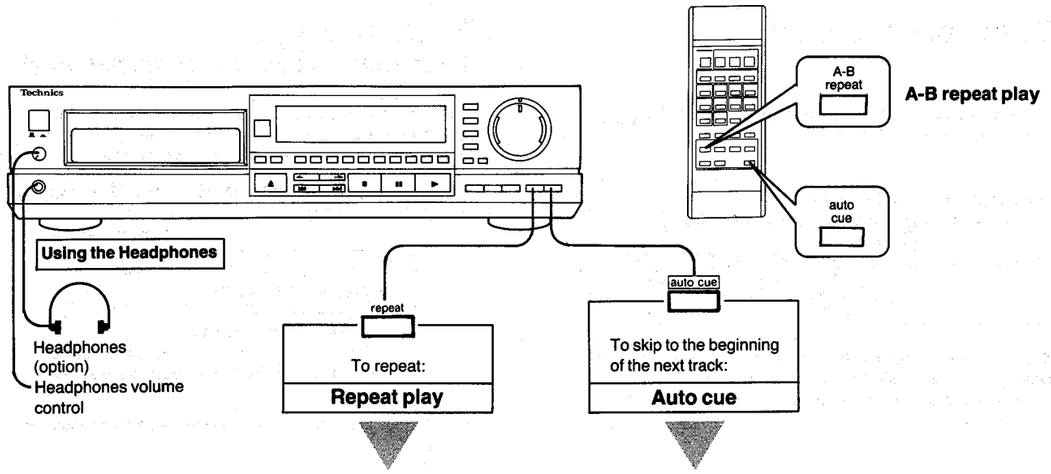
Output level meter



The output level of the channel, left or right, which is higher is displayed. (dB=decibel)

*not displayed during random play

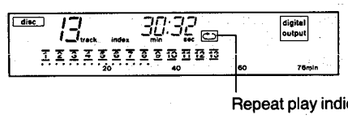
■ CONVENIENT FUNCTIONS



Repeat play

This function allows you to repeat the entire disc or the tracks in the programmed sequence.

Press the repeat button.



●Pressing the repeat button again cancels the repeat play.

A-B repeat play
(by the remote control transmitter only)

You can specify the beginning point (A) and the ending point (B) of the section to be repeated and repeat only that section.

① During play, press the A-B repeat button on the remote control transmitter at the point where you want the repeated section to begin.
- A– illuminates.

② Press the A-B repeat button again at the point where you want the repeated section to end.
- A–B and ⟲ illuminate. A-B repeat play starts.
- ●Pressing the A-B repeat button again cancels A-B repeat.

■ Cue memory function

If specified only point (A) by pressing the A-B repeat button, that point (A) will be in memory.
During play, if pressing the play button, play starts from the point (A) again.

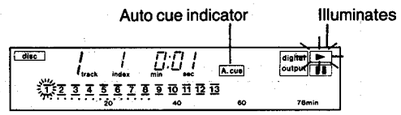
Auto cue

The auto cue function allows the unit to wait in the standby condition at the beginning of each tune so as to start play right when you are ready.
When each tune finishes playing the unit skips to the beginning of the next tune and switches to the play standby mode. This function is especially convenient when used together with programmed play.

1 Press the auto cue button.

2 Press the play button.

The unit switches to the play standby mode.



3 Press the play button again to start play.

●Pressing the auto cue button again cancels auto cue.

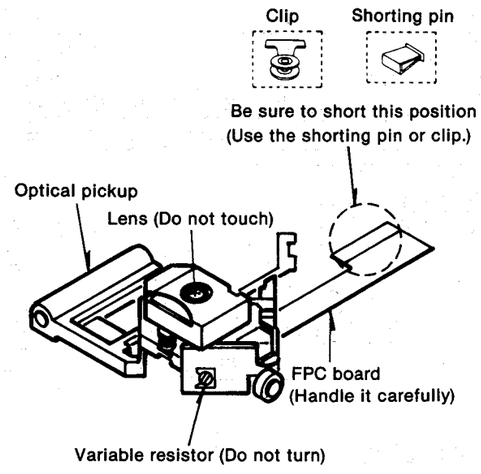
Note:
The auto cue function may not function at the beginning of tune properly if a selection begins with a very soft passage or if there is a lot of background noise.

■ HANDLING PRECAUTIONS FOR OPTICAL PICKUP

The laser diode in the optical pickup may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the optical pickup.

• Handling of optical pickup

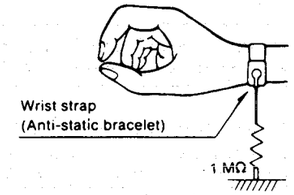
1. Do not subject the optical pickup to static electricity as it is extremely sensitive to electrical shok.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board. **(FPC board)**
   When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board. **(FPC board)**
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

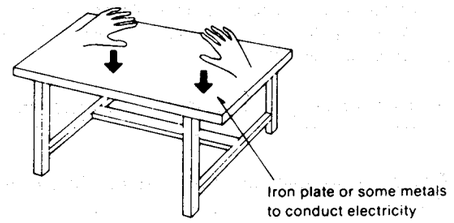


• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the optical pickup.



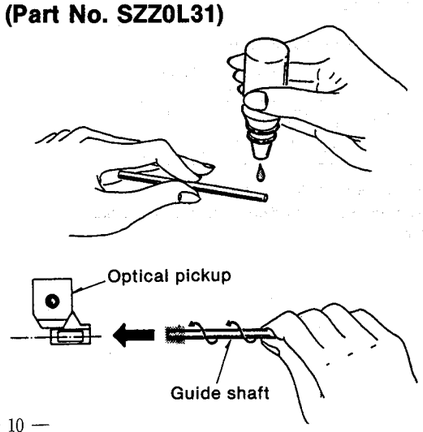


■ INSTRUCTIONS FOR TRAVERSE OIL (Part No. SZZ0L31)

The container contains 6g (approx. 3ml) of oil.
One application (one shaft) uses 0.05ml of oil.

How to Use

(1) Remove the guide shaft in the traverse deck from the optical pickup and clean off any dust from the guide shaft.
(2) Apply one drop of the SZZ0L31 to the tip of the guide shaft.
(3) Hold the guide shaft so that its oiled end touches the optical pickup and insert it into the bearing while rotating it slowly.
(4) After securing the guide shaft, move the optical pickup by hand several times to the left and right to distribute the oil on the guide shaft.



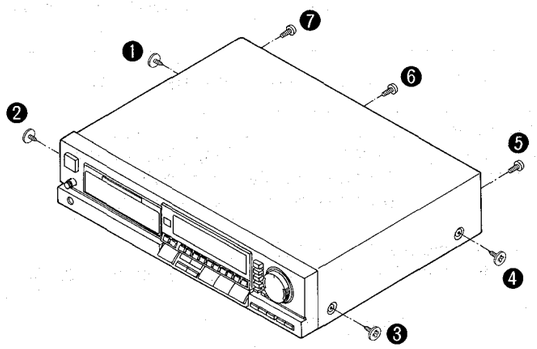
■ DISASSEMBLY INSTRUCTIONS

Warning: This product uses a laser diodes. Refer to caution statements on page 3.

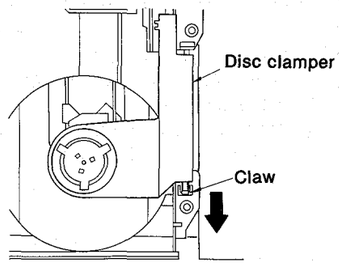
ACHTUNG:
- Die lasereinheit nicht zerlegen.
- Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

*** This CD player is equipped with FPC boards, so handle them with care during disassembly and reassembly.**

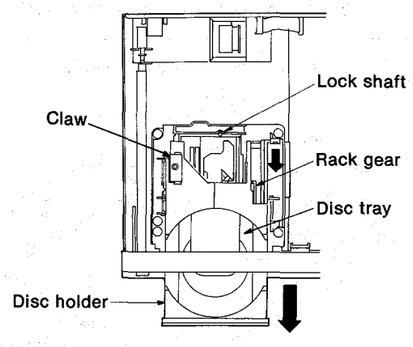
Ref. No. 1	How to remove the cabinet
Procedure 1	1. Remove the 7 screws (❶~❼).



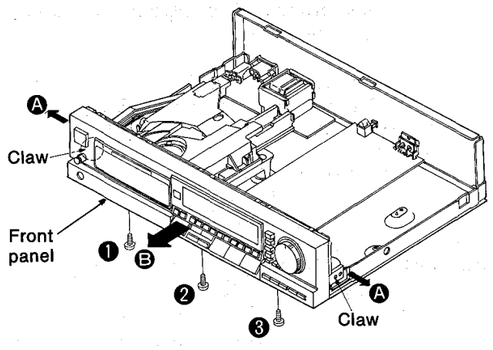
Ref. No. 2	How to remove the disc clamper
Procedure 1→2	1. Push the claw in the direction of the arrow and remove the disc clamper.



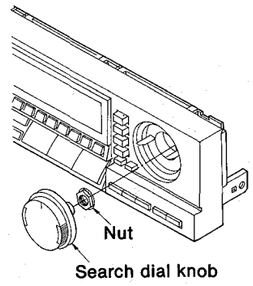
Ref. No. 3	How to remove the disc holder
Procedure 1→2→3	1. Push the rack gear slowly in the direction of the arrow until the disc tray comes up. 2. Pull the disc holder until it stops. 3. Release the claw. 4. Pull out the disc holder further to remove it. **Note:** Make sure to release the lock shaft.

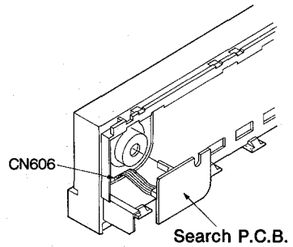


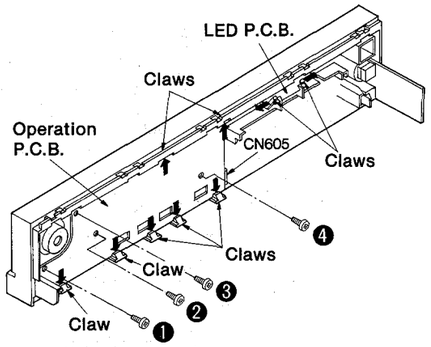
Ref. No. 4	How to remove the front panel
Procedure 1→2→3→4	1. Remove the 3 screws (❶~❸). 2. Slightly pull out the 2 claws in the direction of the arrow Ⓐ. 3. Remove the front panel in the direction of the arrow Ⓑ.



Ref. No. 5	How to remove the search P.C.B., LED P.C.B. and operation P.C.B.
Procedure 1→2→3 →4→5	**A. Search P.C.B.** 1. Remove the search dial knob and nut. 2. Remove the connector (CN606). **B. LED P.C.B** 1. Push the 2 claws in the direction of the arrow. **C. Operation P.C.B.** 1. Remove the 4 screws (❶~❹). 2. Remove the connector (CN605). 3. Push the 7 claws in the direction of the arrow.

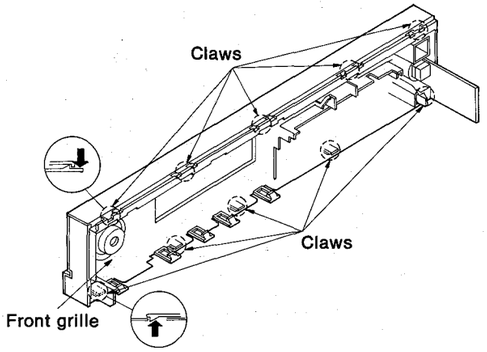




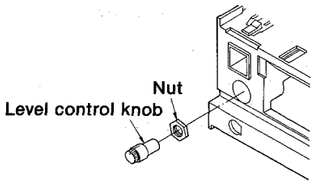


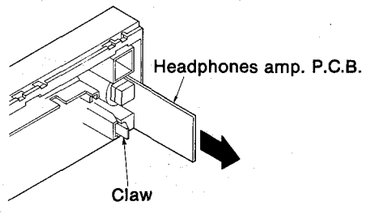
Note: *To remove the search dial knob, push it with a screwdriver through the front panel's back opening.*

Ref. No. 6	How to remove the front grille
Procedure 5→6	1. Push the 10 claws in the direction of the arrow and remove the front grille.

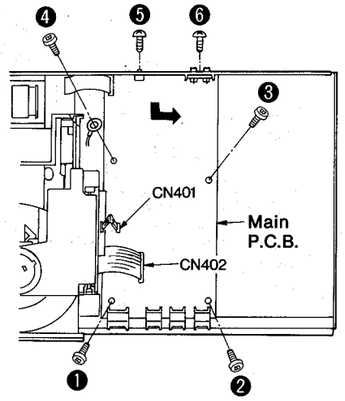


Ref. No. 7	How to remove the headphones amp. P.C.B.
Procedure 5→6→7	1. Remove the level control knob and nut. 2. Release the claw. 3. Remove the headphones amp. P.C.B. in the direction of the arrow.





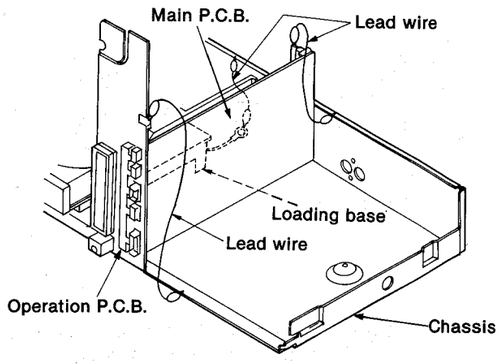
Ref. No. 8	How to remove the main P.C.B.
Procedure 1→2→3 →4→8	1. Remove the 6 screws (❶~❻). 2. Lift the main P.C.B. off the retention posts on the chassis. 3. Remove the main P.C.B. in the direction of the arrow.



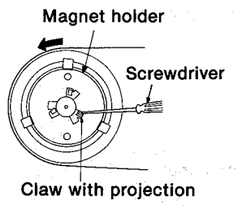
How to check the main P.C.B.

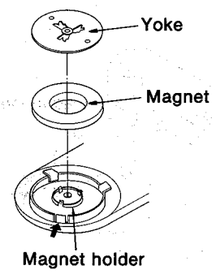
- When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown.

1. Connect the main P.C.B. ground terminal (LINE OUT terminal) to the chassis with a lead wire.
2. Connect the loading base grounding terminal to the chassis with a lead wire.
3. Connect the operation P.C.B. ground terminal to the chassis with a lead wire.

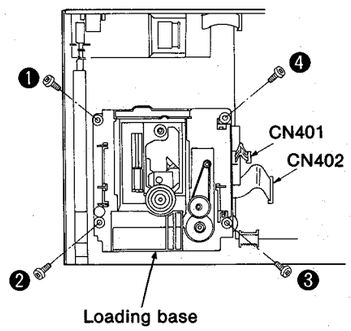


Ref. No. 9	How to remove the magnet and holder
Procedure 1→2→9	1. While lifting the claw with a screwdriver, rotate magnet holder in the direction of the arrow and remove the yoke and magnet. 2. Release the claw of the magnet holder.





Ref. No. 10	How to remove the loading base
Procedure 1→2→3 →4→10	1. Remove the 4 screws (❶~❹). 2. Remove the 2 flat cables (CN401, CN402).



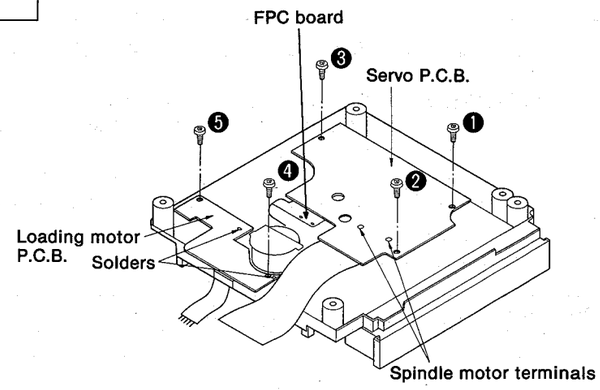
D

Ref. No. 11	How to remove the servo P.C.B. and loading motor P.C.B.
Procedure 10→11	

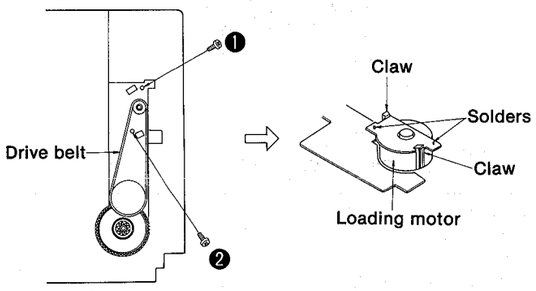
A. Servo P.C.B.
1. Remove the 3 screws (❶~❸).
2. Unsolder the 2 terminals of spindle motor.
3. Remove the FPC board from the optical pickup.

Caution: To prevent the breakdown of the laser diode, antistatic shorting pin is inserted into the FPC board.

B. Loading motor P.C.B.
1. Remove the 2 screws (❹, ❺).
2. Unsolder the 2 terminals of loading motor.

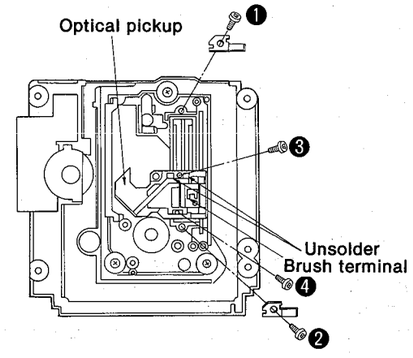


Ref. No. 12	How to remove the loading motor
Procedure 10→12	1. Remove the drive belt. 2. Remove the 2 screws (❶, ❷). 3. Release the 2 claws. 4. Unsolder the 2 terminals of the lead wire of the loading motor.



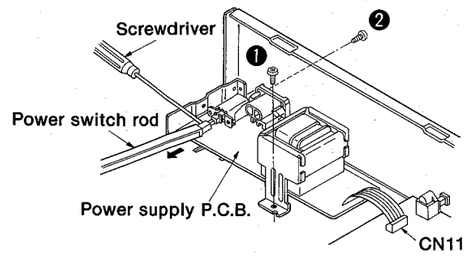
Ref. No. 13	How to remove the optical pickup
Procedure 10→11→13	**Refer to the handling precautions for optical pickup and instructions for traverse oil (See page 10).**

1. Remove the 2 screws (❶, ❷)
2. Unsolder the 2 terminals and the 2 screws (❸, ❹).

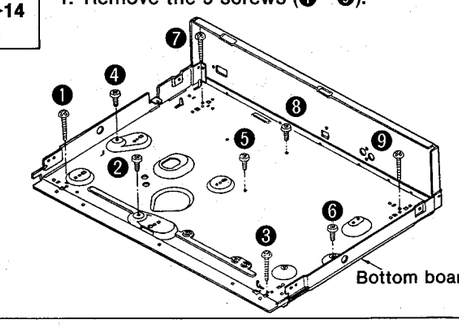


Caution: Take care not to touch the brush terminal.

Ref. No. 14	How to remove the power switch rod and power supply P.C.B.
Procedure 1→14	**A. Power switch rod** 1. Set the power switch in the "OFF" position. 2. Remove the power switch rod by using a screwdriver. **B. Power supply P.C.B.** 1. Remove the 2 screws (❶, ❷). 2. Release the flat cable (CN11).



Ref. No. 15	How to remove the bottom board
Procedure 8→10→14 →15	1. Remove the 9 screws (❶~❾).

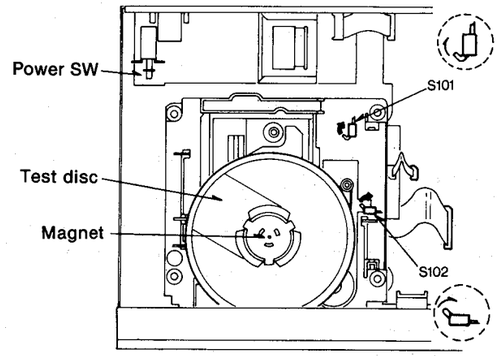


■ MEASUREMENTS AND ADJUSTMENTS

Caution:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens. Avoid exposure to the laser beam, especially when performing adjustments.

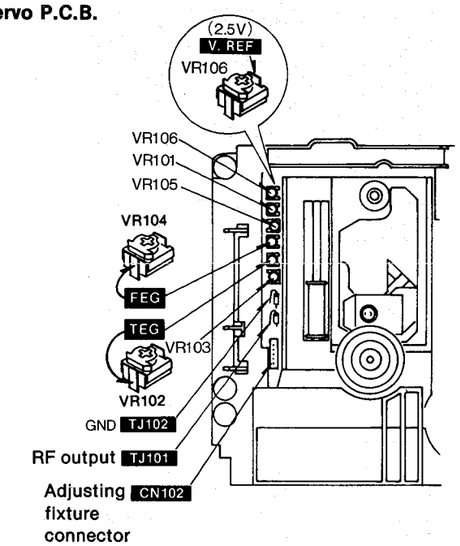
PREPARATION

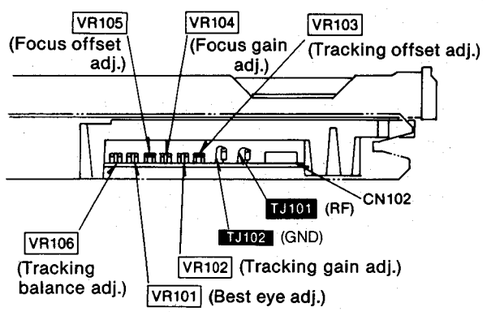
1. Remove the cabinet (see Ref. No. 1 of the disassembly instructions).
2. Remove the disc clamper and magnet (see Ref. No. 2 and No. 9 of the same).
3. Remove the disc holder and power switch rod (see Ref. No. 3 and No. 14 of the same).
4. Place the test disc and magnet on the turntable.
5. While holding the Open/Close switches (S101, S102) in the directions indicated by the arrows, switch the player power ON.
6. After the test disc starts rotating, release the Open/Close switch (S101, S102).



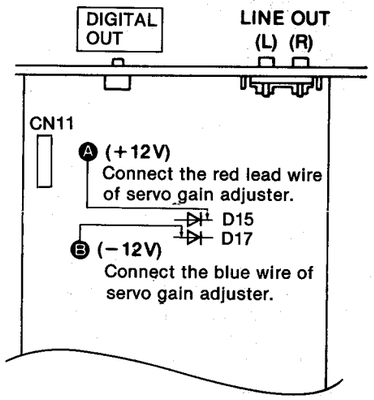
ADJUSTMENT POINTS

• Servo P.C.B.

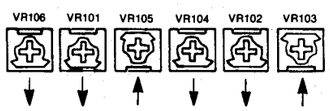




• Main P.C.B.



• Temporary setting of each VR



(Temporary VR setting if any of the trimmer VRs are replaced or require readjustment, temporarily set them to the following positions.)

Measuring Instruments and Special Tools
- * Servo gain adjuster (SZZP1017F or SZZP1094C) ...Refer to page 19.
- * Test discs
1. Playability test disc (SZZP1054C or SZZP1014F)
2. Uneven test disc (SZZP1056C)
3. Black band test disc (SZZP1057C)
- * Normal disc
- * Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT trigger and 1:1 probe).
- * Audio frequency (AF) oscillator
- * Conversion connector (SZZP1032F)
- * Allen wrench (M2.0)
- * Allen wrench (M1.27)
- * 0.9mm clearance gauge (RZZ0297)

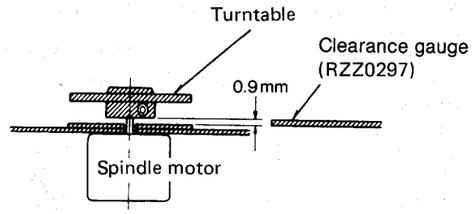
As to the replacement of the following parts, refer to the specified sections for adjustment:
(1) Spindle motor ..... Sections (1), (3) to (8)
(2) Turntable ..... Sections (1), (3) to (8)
(3) Optical pickup ..... Sections (2) to (8)

Adjusting Procedure
- * If you have replaced the spindle motor or turntable, perform the following adjustment:

(1) TURNTABLE HEIGHT ADJUSTMENT

1. Insert the 0.9mm clearance gauge (RZZ0297) between the turntable and the loading base (see the figure at right).
2. Tighten the turntable retention screw with the 1.27mm allen wrench.
3. Connect the oscilloscope's CH. 1 probe across VR104's FEG (+) and VR106's V. REF (−) terminals.
   (Note: A voltage of 2.5V appears at the V. REF terminal. Take care not to short the player's chassis to the oscilloscope ground.)
   Oscilloscope setting: VOLT ..... 50 mV
   SWEEP ..... 1 ms.
   Input coupling ... DC
4. Adjust oscilloscope's DC zero balance.
5. Switch the player power **ON**, and play the test disc (SZZP1014F or SZZP1054C).
6. Measure the DC level displayed on the oscilloscope.

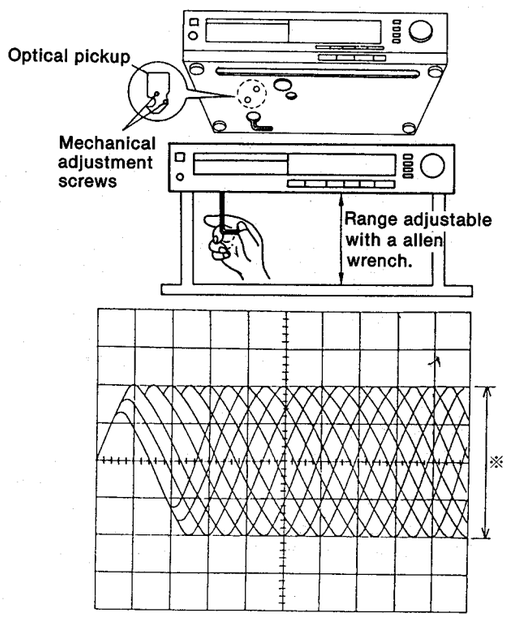
Note 1. If the measured amplitude is within a range of +/− 15mV, the turntable height is correct. If it is outside this range, adjust the turntable height by using the clearance gauge as a pry.
If the amplitude exceeds +15mV, lower turntable.
If the amplitude is below −15mV, elevate the turntable.



Note 2. If the measured amplitude greatly surpasses or falls short of the range above, set **VR105** at or around the center, then try to adjust the height again. (Then be sure to adjust the focus offset as well.)

(2) MECHANICAL ADJUSTMENT

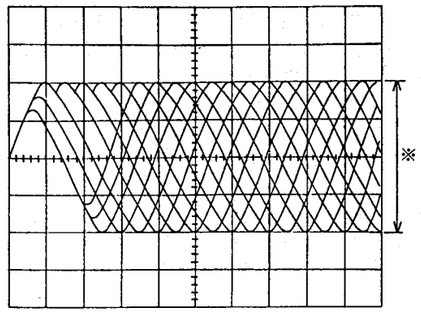
1. Connect the oscilloscope's CH. 1 probe across TJ101 (+) and TJ102 (−) on the Servo P.C.B.
   Oscilloscope setting: VOLT ..... 100 mV
   SWEEP ..... 0.5 μs.
   Input coupling ... AC
2. Switch the player power **ON**, and play track **9** on the test disc (SZZP1056C). (Playing any other track may yield a false adjustment.)
3. Leave the player in Play mode, and place it as shown in the figure on the right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0mm allen wrench until the RF signal amplitude variation on the oscilloscope is minimized.
5. After completing the adjustment, lock the **mechanical adjustments** with lock paint (RZZOL01).



※ Minimize the variation of amplitude.

(3) BEST EYE (PD BALANCE) ADJUSTMENT

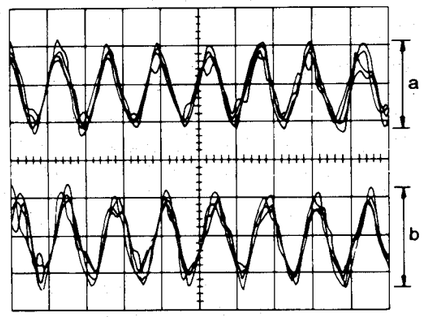
1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (–) on the Servo P.C.B.
   Oscilloscope setting: VOLT 200mV
   SWEEP . . . . . 0.5 μs.
   Input coupling . . . AC
2. Switch the player power **ON**, and play the 0.5 mm black dot on the test disc (SZZP1014F or SZZP1054C).
3. Adjust **VR101** until the RF signal eye pattern amplitude is maximized.



※ Maximize the amplitude.

(4) FOCUS GAIN ADJUSTMENT

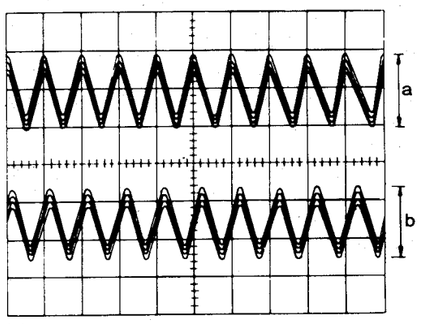
1. Connect the servo gain adjuster to the player (see page **19**).
2. Set the servo gain adjuster's gain switch to position **"2"** and the ON/OFF switch to **ON**.
3. Set up the AF oscillator output for **825Hz, 150 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
4. Connect oscilloscope's CH. 1 and CH. 2 probes to the servo gain adjuster's TP1 and TP2 terminals, respectively (TP3 is GND).
   Oscilloscope setting: VOLT . . . . . 100 mV (both channels)
   SWEEP . . . . . 1ms.
   Input coupling . . . AC
5. Play the test disc (SZZP1014F or SZZP1054C).
6. Set the servo gain adjuster's gain switch to position "3", and you will see a 825 Hz signal on the oscilloscope. Adjust **VR104** until the signal amplitudes on both channels become identical to each other.
7. Set the gain switch back to position **"2"**.



※ Adjust **VR104** until a equals b.

(5) TRACKING GAIN ADJUSTMENT

1. Set up the AF oscillator output for **1.1 kHz, 150 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
2. Connect oscilloscope's CH. 1 and CH. 2 probes to the servo gain adjuster's TP1 and TP2 terminals, respectively (TP3 is GND).
   Oscilloscope setting: VOLT . . . . . 100 mV (both channels)
   SWEEP . . . . . 1ms.
   Input coupling . . . AC
3. Switch the player power **ON**, and play the test disc (SZZP1014F or SZZP1054C).
4. Set the servo gain adjuster's gain switch to position "1", and you will see a 1.1 kHz signal on the oscilloscope. Adjust **VR102** until the signal amplitudes on both channels become identical to each other.
5. Set the gain switch back to position **"2"**.

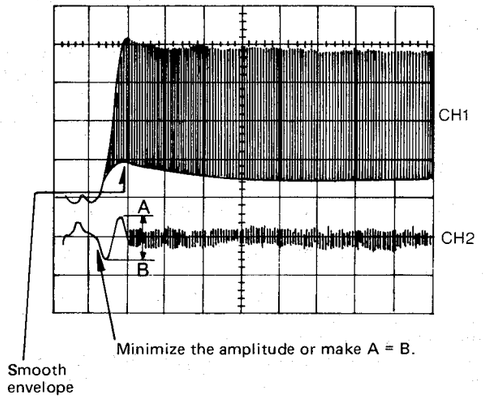


※ Adjust VR102 until a equals b.

(6) FOCUS OFFSET ADJUSTMENT

Note: Make sure that the servo gain adjuster's gain switch is set to position **"2"**.

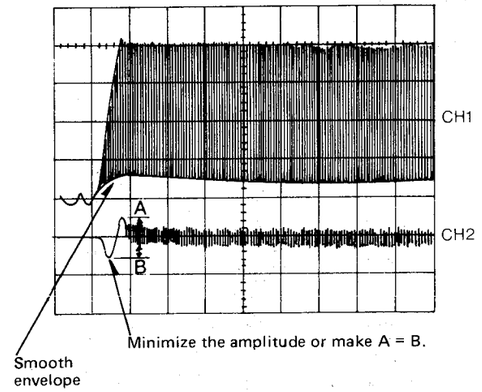
1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (–) on the Servo P.C.B. and its CH. 2 probe (+) to VR104's **FEG** terminal.
   Oscilloscope setting: VOLT. . . . . .100 mV (CH. 1)
   100 mV (CH. 2)
   SWEEP. **0.5ms**
   Input coupling. . . AC (both CH. 1 and 2)
   Trigger mode . . . .NORM (trigger CH. 1.)
2. Switch the player power **ON**, and play track **9** on the test disc (SZZP1057C).
3. Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust **VR105** until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH. 2 is minimized, i.e. when amplitude A equals amplitude B.



(7) TRACKING OFFSET ADJUSTMENT

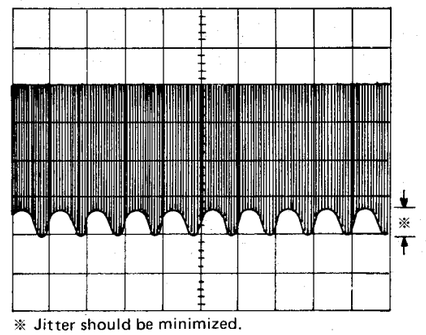
Note: Make sure that the servo gain adjuster's gain switch is set to position **"2"**.

1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (–) on the Servo P.C.B., and its CH. 2 probe (+) to VR102's **TEG** terminal.
   Oscilloscope setting: VOLT. . . . . .**100mV (CH. 1)**
   200mV (CH. 2)
   SWEEP. . . . . .**0.5ms.**
   Input coupling. . AC (both CH. 1 and 2)
   Trigger mode. . . NORM (trigger CH. 1.)
2. Switch the player power **ON**, and play track **9** on the test disc (SZZP1057C).
3. Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust **VR103** until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH. 2 is minimized, i.e. when amplitude A equals amplitude B.



(8) TRACKING BALANCE ADJUSTMENT

1. Make sure that servo gain adjuster's gain switch is set to position **"2"**.
2. Set up the AF oscillator output for **1.1 kHz, 600 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
3. Connect oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (–) on the Servo P.C.B. and CH. 2 probe (+) to the OSC terminal on the servo gain adjuster.
   Oscilloscope setting: VOLT. . . . . .100 mV (CH. 1)
   SWEEP. . . . . .0.5ms.
   Input coupling. . .AC (both CH. 1 and 2)
   Trigger mode . . .NORM (trigger CH. 2)
4. Switch the player power **ON**, and play the test disc (SZZP1014F or SZZP1054C).
5. Set the servo gain adjuster's gain switch to position **"1"**, and adjust **VR106** until the jitter contained in the signal waveform on CH. 1 is minimized as shown below.
6. Disconnect the servo gain adjuster's leads from the player.



※ Jitter should be minimized.

D

(9) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

* **Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

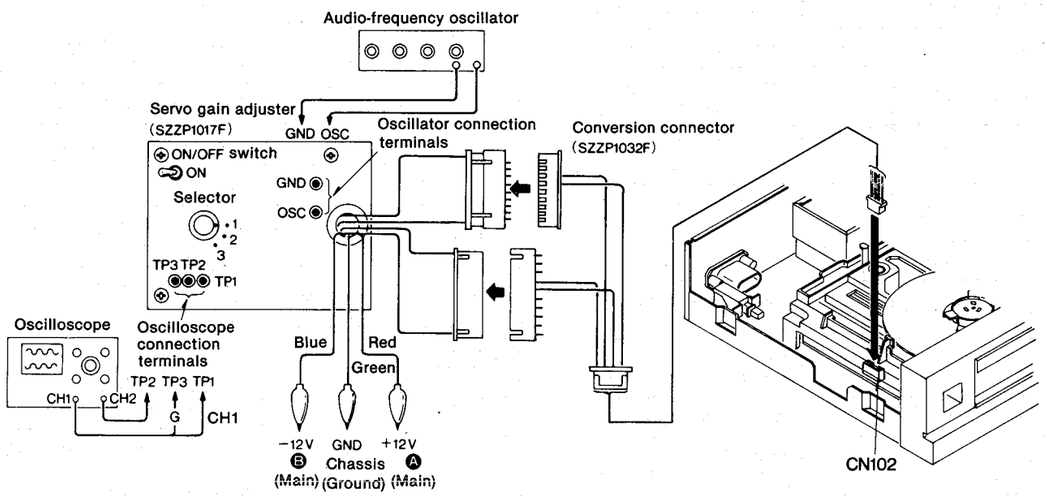
* **Checking Manual Search**

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

* **Checking Using Defect Disc**

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc and verify that no sound skip or noise occurs.

• Connection of servo gain adjuster



■ NEW SERVO GAIN ADJUSTER (Servo Amp. Adjusting Fixture)

The following introduces the improved version of the current servo gain adjuster (SZZP1017F):

Part number: SZZP1094C

Features:

(1) Contains all oscillation frequencies and output adjustments needed for focus servo gain, tracking servo gain, and tracking balance adjustment (requires no external oscillator).
(2) Panel indicators indicate the best points of focus and tracking servo gains (no oscilloscope needed).
(3) Internal power supply eliminates the need for power supply from the CD player.

■ TERMINAL FUNCTIONS OF IC's

• IC101 (AN8373S): Servo amp.

Pin No.	Mark	I/O Division	Function
1	AMP1	I	RF signal input (X30 amp.)
2	PDAD	I	Photo detector current input (A2)
3	PDA	I	Photo detector current input (A1)
4	PDBD	I	Photo detector current input (A4)
5	PDB	I	Photo detector current input (A3)
6	LPD	I	Non-inverting laser power input
7	LD	O	Laser power auto control output
8	FBL1	I	PD balance adjustment
9	FBL2	I	
10	TBL1	I	Tracking balance adjustment
11	TBL2	I	
12	FOOFS	I	Focus offset adjustment
13	IVA	O	Current/voltage conversion output (A)
14	IVB	O	Current/voltage conversion output (B)
15	FE	O	Focus gain adjustment output
16	FPI	I	Focus error signal input
17	TPI	I	Tracking error signal input
18	C. TPL	I	Tracking error filter capacitor input
19	C. TPH		
20	C. FPL	I	Focus error filter capacitor input
21	C. FPH		

Pin No.	Mark	I/O Division	Function
22	TPO	O	Tracking error signal output
23	FPO	O	Focus error signal output
24	FGC	I	Focus gain up signal input (Not used, connected to GND)
25	TGC	I	Tracking gain up signal input (Not used, connected to GND)
26	GD	I	Focus/tracking gain down signal input (Not used, connected to GND)
27	PTO	O	Position detecting amp. output
28	PTI	I	Position detecting amp. input
29	PBO	O	Position detecting buffer output
30	POT	I	Position detecting buffer input
31	BDO	O	Dropout detection output
32	$\overline{\text{RFDET}}$	O	RF detection signal output
33	SDO	O	Dropout detection pulse output
34	C. SBDO	I	Dropout detecting capacitor input
35	ARF	O	RF signal output
36	C. AGC	I	AGC detecting capacitor input
37	VCC	I	Power supply (+5 V input)
38	LDON	I	Laser power control input
39	RF IN	I	RF signal input
40	AMPO	O	RF signal output
41	VREF	O	Reference voltage output
42	GND	I	Ground terminal

• IC102 (AN8374S): Servo processor

Pin No.	Mark	I/O Division	Function
1	LSA	I	Phase difference input (A)
2	LSB	I	Phase difference input (B)
3	TEOFS	I	Tracking offset adjustment
4	TE	O	Tracking gain adjustment
5	TEG	I	
6	TE OUT	O	Tracking error signal output
7	TE BPF	I	Tracking error gain detecting filter (Not used, open)
8	FEG	I	Focus gain adjustment
9	FE OUT	O	Focus error signal output
10	CLW	O	Triangular wave oscillator capacitor input
11	VREF	I	Reference voltage input
12	ARF	I	RF signal input
13	CDSL	I	Data slice filter capacitor input
14	FPC	I	Frequency difference signal input
15	GND	I	Ground terminal
16	C. PLL	I	PLL loop filter constant
17	VSS	I	Ground terminal
18	CLK	I	Frequency pull-in clock signal (88.2 kHz) input
19	SRF	O	Sliced and digitized RF signal output
20	PCK	O	Clock output extracted from SRF
21	EFM	O	EFM signal output synchronous with PCK

Pin No.	Mark	I/O Division	Function
22	VDD	I	Power supply (+5 V input)
23	SPCNT	O	Track crossing speed control output (Not used, open)
24	SENSE	O	Selector output (track crossing state)
25	TRV	O	Traverse servo control output
26	$\overline{\text{FLOCK}}$	O	Focus lock signal output
27	KICK	O	Track kick signal output
28	LDON	O	Laser power control output
29	VDET	O	Focus/tracking gain up output (Not used, open)
30	CNT1	I	Control input (FOON: Focus servo ON signal)
31	CNT2	I	Control input (TRON: Tracking servo ON signal)
32	CNT3	I	Control input (KICKF: Kick direction (forward) command)
33	CNT4	I	Control input (KICKR: Kick direction (reverse) command)
34	TRVF	I	Traverse forward command signal
35	TRVR	I	Traverse backward command signal
36	$\overline{\text{RFDET}}$	I	RF detection signal input
37	BDO	I	Dropout detection input
38	VCC	I	Power supply (+5 V input)
39	TVPO	O	Traverse position detecting resistor/capacitor inputs
40	TVPI	I	
41	BROUT	O	Tracking drive control output
42	BRIN	I	Tracking error signal input

• IC103 (AN8377): BTL drive

Pin No.	Mark	I/O Division	Function
1	PVCC	I	Driver power supply (+8.9V input)
2	VCC	I	Power supply (+8.9V input)
3	TB	O	External transistor base driving output
4	VMON	O	Voltage output
5	TVDI	I	Traverse error signal input
6	FDI	I	Focus error signal input
7	TDI	I	Tracking error signal input
8	VREF	I	Reference voltage input

Pin No.	Mark	I/O Division	Function
9	TD–	O	Inverting output of tracking driver
10	TD+	O	Non-inverting output of tracking driver
11	FD–	O	Inverting output of focus driver
12	FD+	O	Non-inverting output of focus driver
13	TVD–	O	Inverting output of traverse driver
14	TVD+	O	Non-inverting output of traverse driver
15	$\overline{\text{RESET}}$	O	Reset signal output
16	PC	I	PC input (connect to GND)

• IC301 (MN6625): Digital signal processing

Pin No.	Mark	I/O Division	Function
1	BYTCK	O	Serial data byte clock (Not used, open)
2	FCLK	O	Crystal frame clock (Not used, open)
3	DEMPH	O	De-emphasis ON signal (de-emphasis ON at "H") (Not used, open)
4	SRDATA	O	Serial data output (MSB first)
5	SCK	O	Serial bit clock output
6	LRCK	O	LR discrimination signal output
7	WDCK	O	Serial data output word clock
8	LDG	O	L channel deglitch signal (Not used, open)
9	RDG	O	R channel deglitch signal (Not used, open)
10	IPFLAG	O	Interpolation flag (interpolation at "H")
11	FLAG	O	Error flag terminal
12	XCK	O	Clock (16.9344 MHz) output (Not used, open)
13	TEST	I	Test mode selection (Not used, connected to +5V)
14	TX	O	Digital signal output
15	SLEEP	I	Mode selector ("L": normal, "H": SLEEP mode)
16	CSEL	I	Test terminal ("L": normal)
17	X1	I	Clock input (16.9344 MHz)
18	X2	O	Clock output (16.9344 MHz) (Not used, open)
19	VSS	I	GND terminal
20	BLKCK	O	Sub-code block (Q data) clock (75 Hz)
21	$\overline{\text{CLDCK}}$	O	Sub-code frame (Q data) clock (7.35 kHz)
22	$\overline{\text{SUBQ}}$	O	Sub-code (Q data) output
23	$\overline{\text{RST}}$	I	Reset signal input (reset at "L")
24	MLD	I	Command load signal input

Pin No.	Mark	I/O Division	Function
25	MCLK	I	Command clock signal input
26	MDATA	I	Command data input
27	DMUTE	I	Muting control
28	$\overline{\text{TRON}}$	I	Tracking servo ON signal (tracking servo ON at "L")
29	STAT	O	Processing condition (CRC, CUE, CLVS, TT STOP, FCLV)
30	SUBC	O	Sub-code serial output data (Not used, open)
31	SBCK	I	Clock for sub-code serial output (Not used, open)
32	SMCK	O	Clock output (4.2336 MHz)
33	VDD	I	Power supply (connected to +5V)
34	MEMP	I	Emphasis signal input
35	FG	I	Spindle motor FG signal input (Not used, open)
36	PC	O	Spindle motor ON signal (ON at "L")
37	EC	O	Spindle motor drive signal
38	RESY	O	Resynchronizing signal (Not used, open)
39	DO	I	Drop-out signal (Drop-out at "H")
40	SRF	I	EFM signal input (DSL)
41	EFM	I	EFM signal input (PLL)
42	PCK	I	PLL extract clock input (4.3218 MHz)
43	FPC	O	PLL frequency comparision signal
44 ⟆ 51	D7 ⟆ D0	I/O	16K RAM data input/output
52	RAM/OE	O	16K RAM $\overline{\text{OE}}$ signal
53	RAM/WE	O	16K RAM $\overline{\text{WE}}$ signal
54 ⟆ 64	RAM/A0 ⟆ RAM/A10	O	16K RAM address signal (RAMA0: LSB, RAMA10: MSB)

•IC401 (MN1554PEZ-1): System control

Pin No.	Mark	I/O Division	Function
1	BRECV	——	(Not used, open)
2	BSEND	——	(Not used, open)
3	SYNC	O	(Not used, open)
4	SIRQ	I	Not used (connected to +5V)
5	BLKCK	I	Sub-code block (Q data) clock input (75Hz)
6	CLDCK	I	Sub-code block (Q data) clock input (7.35kHz)
7	SBO	I	(Not used, open)
8	SUBQ	I	Sub-code (Q data) input
9	RST	I	Reset signal input
10 ⟆ 13	P20 ⟆ P23	O	Not used (connected to +5V)
14	CLOSE	O	Loading motor "Close" command
15	OPEN	O	Loading motor "Open" command
16	SLOW	O	(Not used, open)
17	MUTE	O	Muting control
18	SEEK	O	Traverse servo control (Not used, open)
19	NC	–	Not connected
20	TRV.R	O	Traverse "Reverse" command signal
21	TRV.F	O	Traverse "Forward" command signal
22	CNT4	O	Optical servo IC control signal (KICKR: Kick direction [reverse] command)
23	CNT3	O	Optical servo IC control signal (KICKF: Kick direction [forward] command)
24	CNT2	O	Optical servo IC control (TRON: Tracking servo)
25	VDD	I	Power supply (connected to +5V)
26	DOWN	O	(Not used, open)
27	UP	O	(Not used, open)
28	CNT1	O	Optical servo IC control signal (FOON: Focus servo)

Pin No.	Mark	I/O Division	Function
29	CLOSE	I	Disc holder "Open" detection
30	OPEN	I	Disc holder "Close" detection
31	BCLK	I	(Not used, connected to GND)
32	BDATA	I	(Not used, connected to GND)
33	STAT	I	Processing status input from signal processing LSI
34	COMP	O	TOC reading control (ON at "L") (connected to GND)
35	FLOCK	I	Optical servo condition (focus) input
36	SENSE	I	Optical servo condition (track cross) input
37	RECV	I	Data receipt command signal
38	SEND	I	Data transmission command signal
39	ACK	I	Data discrimination signal
40	CLK	I	Data lock signal
41 ⟆ 44	DATA0 ⟆ DATA3	I	Key scan signal
45 ⟆ 52	NC	I	Not connected
53	OSC2	I	Clock terminal
54	OSC1	I	Clock input
55	X1	I	Optical servo condition input
56	X0	O	(Not used, open)
57	GND	I	GND terminal
58	DMUTE	O	Muting control
59	MDATA	O	Command data output
60	MCLK	O	Data clock output (command clock signal)
61	MLD	O	Data output (command load signal)
62	DOUTON	O	Optical output control signal (Not used, open)
63	EMPH	O	Emphasis signal output
64	NC	——	Not connected

• IC601 (MB88724PJC): System control and FL drive

Pin No.	Mark	I/O Division	Function
1 ⟆ 14	C0 ⟆ C13	O	FL grid signal
15	C14	O	FL grid signal (Not used, open)
16	C15	O	FL grid signal (Not used, open)
17	P00	O	Key scan signal
18	P01		
19	P02	O	Data discrimination signal
20	P03	O	Data lock signal
21 ⟆ 24	P10 ⟆ P13	O	Key scan signal
25	P40	I	Remote control signal
26	P41	–	Not used, open
27	P42	O	Data receipt command signal
28	P43	O	Data transmission command signal
29	P50	–	Not used, open
30	P51	I	Not used, connected to GND
31	$\overline{RES}$	I	Reset signal input (reset at "L")
32	VSS	I	GND terminal

Pin No.	Mark	I/O Division	Function
33	X	I	Clock signal input (4.2336MHz)
34	EX		
35	SE	I	Not used, connected to +5V
36	WD	I	Not used, connected to GND
37	XL	O	Not used, open
38	EXL	O	Not used, open
39 ⟆ 42	P60 ⟆ P63	I	Key return signal
43 ⟆ 46	P70 ⟆ P73		
47	VPP	I	FL drive power supply (connected to −32V)
48 ⟆ 63	S15 ⟆ S0	O	FL anode signal
64	VCC	I	Power supply (connected to +5V)

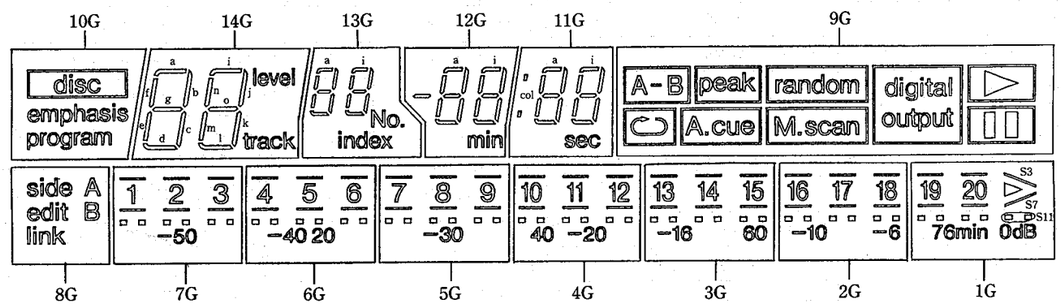
•IC801 (MN6471): Digital filter and D/A converter

Pin No.	Mark	I/O Division	Function
1	MLD	I	Command load input (load: L)
2	RSTB	I	Reset signal input (reset at "L")
3	IE	I	Not used, connected to GND
4	TP1	—	TEST terminal
5	TP2	—	
6	TEST1	I	TEST terminal 1 (connected to GND)
7	TEST2	I	TEST terminal 2 (connected to GND)
8	NC	—	Not connected
9	NC	—	Not connected
10	AVDD4	I	Power supply (connected to +5V)
11	OUTL (−)	O	Lch data output, (−) terminal
12	AVSS4	I	GND terminal
13	AVSS3	I	GND terminal
14	OUTL (+)	O	Lch data output, (+) terminal
15	AVDD3	I	Power supply (connected to +5V)
16	NC	—	Not connected
17	AVDD2	I	Power supply (connected to +5V)
18	OUTR (+)	O	Rch data output, (+) terminal
19	AVSS2	I	GND terminal (analog system)
20	AVSS1	I	GND terminal (analog system)
21	OUTR (−)	O	Rch data output, (−) terminal

Pin No.	Mark	I/O Division	Function
22	AVDD1	I	Power supply (connected to +5V)
23	DVDD1	I	Power supply (connected to +5V)
24	DVSS1	I	GND terminal (digital system)
25	X2	O	Clock output
26	X1	I	Clock input
27	NC	—	Not connected
28	DVDD2	I	Power supply (connected to +5V)
29	DVSS2	I	GND terminal (digital system)
30	NSUB	I	Sub-strate terminal (Not used, connected to +5V)
31	ZFLGB	O	Zero input detector terminal (Not used, open)
32	192fs	O	192 fs (8.4672MHz) (Not used, open)
33	LRPOL	I	LR clock selector (Not used, connected to +5V)
34	LRCLK	I	LR discrimination signal input
35	BCLK	I	Serial bit clock input
36	SRDATA	I	Serial data input (MSB first)
37	DVSS 3	I	GND terminal (digital system)
38	DVDD	I	Power supply (connected to +5V)
39	384 fs	O	384 fs (16.9344MHz) output
40	PD	I	Power down terminal
41	MDATA	I	Command data input
42	MCLK	I	Command clock input

■ INTERNAL CONNECTION OF FL

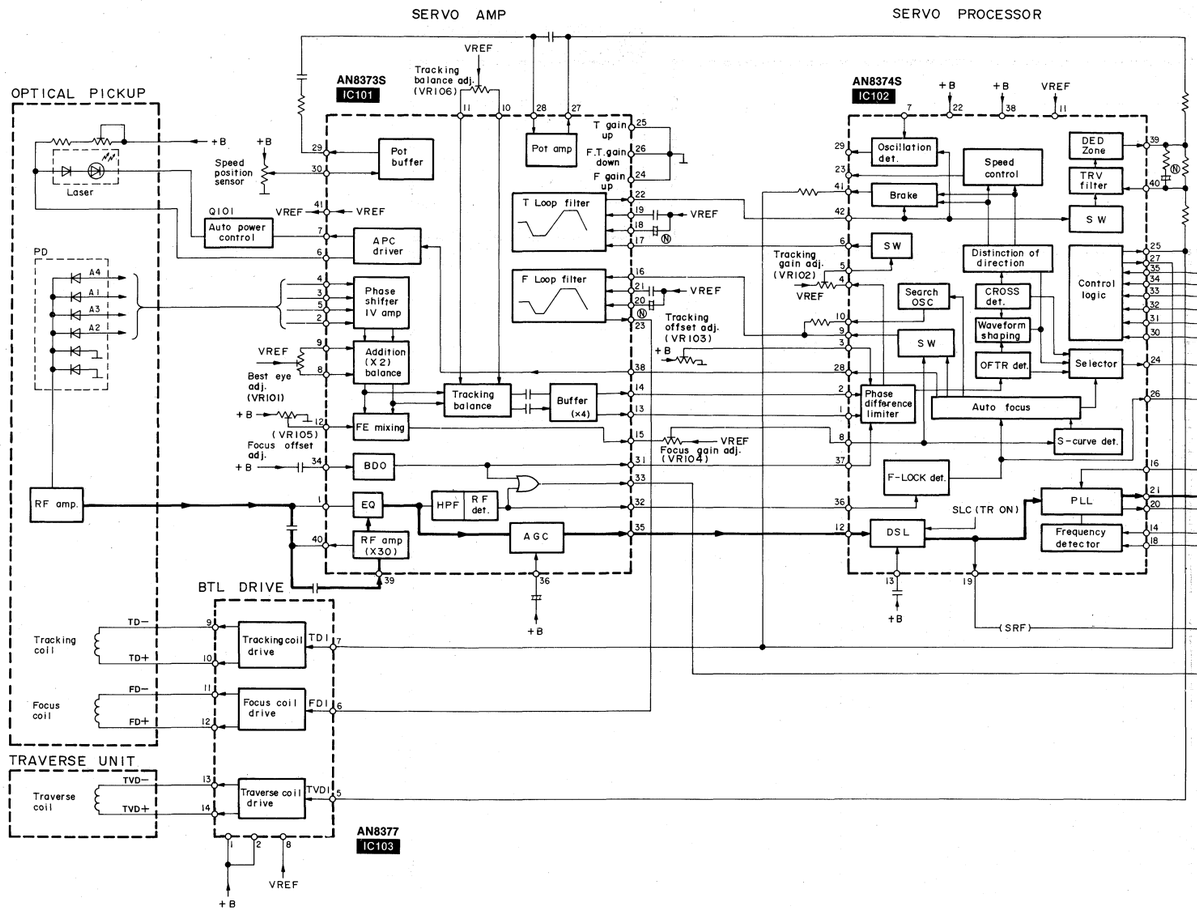
• Grid connection diagram

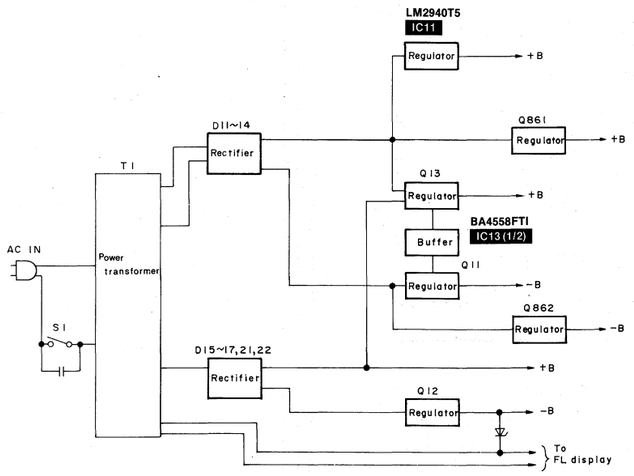


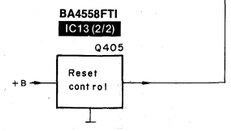
• Anode connection table

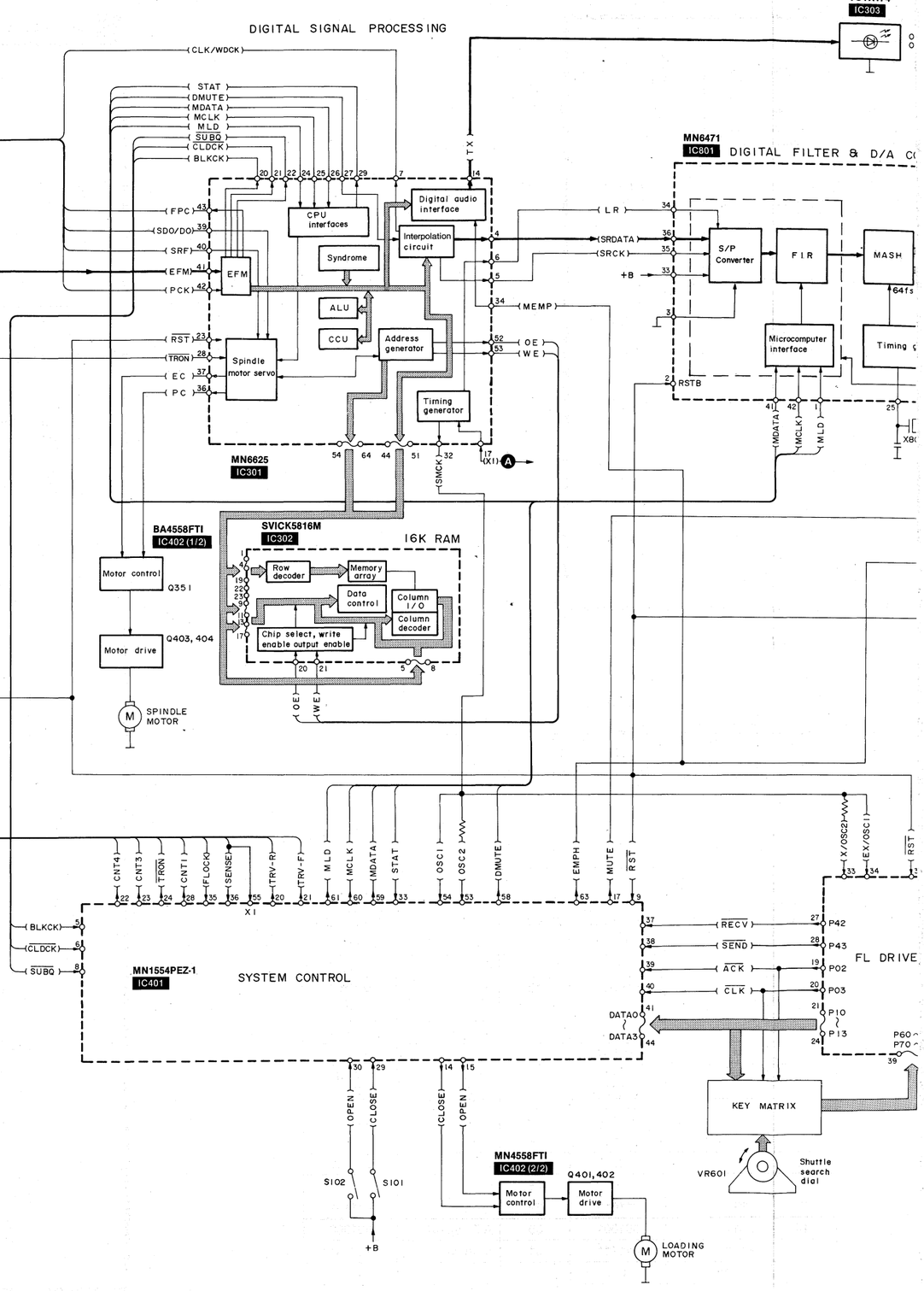
	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
S1	a	a	a	a	disc	-	edit	1	4	7	10	13	16	19
S2	b	b	b	b	program	-	link	2	5	8	11	14	17	20
S3	f	f	f	f	-	-	A	3	6	9	12	15	18	/
S4	g	g	g	g	-	M.scan	B	1	4	7	10	13	16	19
S5	c	c	c	c	-	peak	side	1	4	7	10	13	16	19
S6	e	e	e	e	-	A-	-	2	5	8	11	14	17	20
S7	d	d	d	d	-	B	-	3	6	9	12	15	18	/
S8	level	No.	—	col	-	↻	-	2	5	8	11	14	17	20
S9	i	i	i	i	-	digital output	-	1	4	7	10	13	16	19
S10	j	j	j	j	-	A.cue	-	2	5	8	11	14	17	20
S11	n	n	n	n	emphasis	-	-	3	6	9	12	15	18	21
S12	o	o	o	o	-	random	-	3	6	9	12	15	18	▶
S13	k	k	k	k	-	▶	-	-	-	-	-	-	-	-
S14	m	m	m	m	-	❚❚	-	-	-	-	-	-	-	-
S15	ℓ	ℓ	ℓ	ℓ	-	-	-	-50	-40	-30	-20	-16	-10 -6	0 dB
S16	track	index	min	sec	-	-	-	-	20	-	40	60	-	76min

■ BLOCK DIAGRAM









PROCESSOR

DIGITAL SIGNAL PROCESSING

TOTX174 IC303 — OPTICAL OUT

MN6471 IC801 DIGITAL FILTER & D/A CONVERTER

MN6625 IC301

BA4558FTI IC402 (1/2)

SVICK5816M IC302 16K RAM

LM833M IC802, 804 (1/2)

SVIH8DN2175 IC811

NJM4560M IC805

NJM4560M IC806

LM833M IC803, 804 (2/2)

SVIH8DN2175 IC812

SVINJM4556SA IC871

REMOTE CONTROL TRANSMITTER

MN6014HS IC1

HC-MD10E IC602

BA4558FTI IC13 (2/2)

MN1554PEZ-1 IC401 SYSTEM CONTROL

MB8872BPJC IC601 FL DRIVE & KEY MATRIX CONTROL

MN4558FTI IC402 (2/2)

KEY MATRIX

FL DISPLAY

FL601

Note)
• ⟶ Audio signal

SL-P555 SL-P555

■ SCHEMATIC DIAGRAM

(Parts list on pages 49~53.)

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

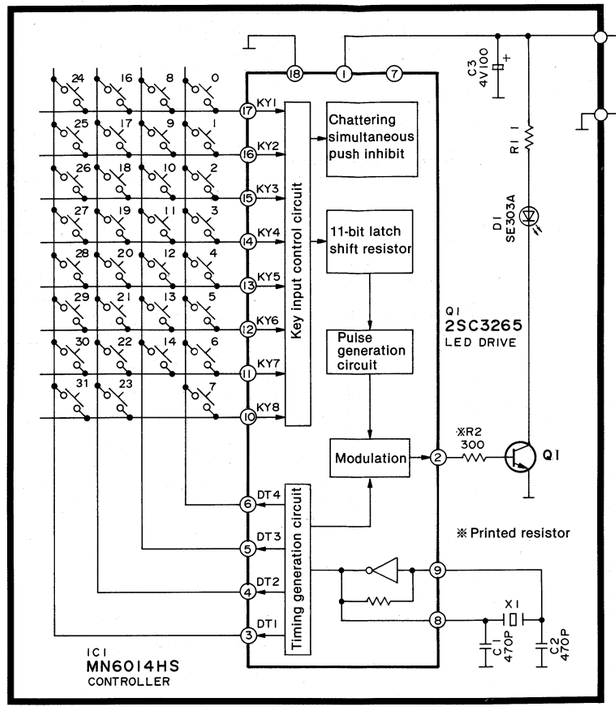
- **S1** : Power switch in "**on**" position.
- **S2** : Voltage selector switch. (For [XA], [XB], [PA], [PE] and [PC] only.)
- **S101** : Disc holder open/close detection switch.
- **S102** : Disc holder open/close detection switch.
- **S601** : Tape-side select (side A/B) switch.
- **S602** : Auto cue (auto cue) switch.
- **S603** : Programmed-play (program) switch.
- **S604** : Edit tape length (edit tape length) switch.
- **S605** : Peak level search (peak search) switch.
- **S606** : Repeat (repeat) switch.
- **S607** : Display mode select (display mode) switch.
- **S608** : Recall (recall) switch.
- **S609** : Disc link (disc link) switch.
- **S610** : Play (▶ play) switch.
- **S611** : Time mode select (time mode) switch.
- **S612** : Clear (clear) switch.
- **S613~616, 618~621, 623, 624, 628, 629** : Numeric (+10, 0, 1~10) switches. [S613: 1, S614: 5, S615: 9, S616: 0, S618: 2, S619: 6, S620: 10, S621: +10, S623: 3, S624: 7 S628: 4, S629: 8]
- **S622** : Stop (■ stop) switch.
- **S625, 630** : Index skip (←index/index→) switches. S625: → (F), S630: ← (R)
- **S626, 631** : Skip (I◀◀ skip/skip ▶▶I) switches. S626: ▶▶I (F), S631: I◀◀ (R)
- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
  - ∗The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.
- Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- —< >—/---< >---: Positive voltage lines and negative voltage lines.
  ▒▒▒▒▒▒ : Audio signal lines.

Caution!

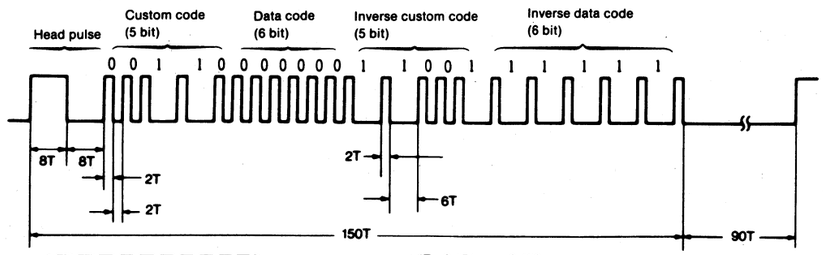
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

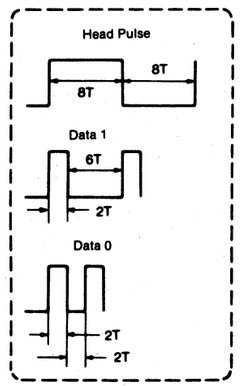
• Remote control transmitter



• Key number description and data code


Head pulse
Custom code (5 bit)
Data code (6 bit)
Inverse custom code (5 bit)
Inverse data code (6 bit)
0 0 1 1 0 0 0 0 0 0 0 0 1 1 0 0 1 1 1 1 1 1 1
8T 8T 2T 2T 2T 6T 150T 90T

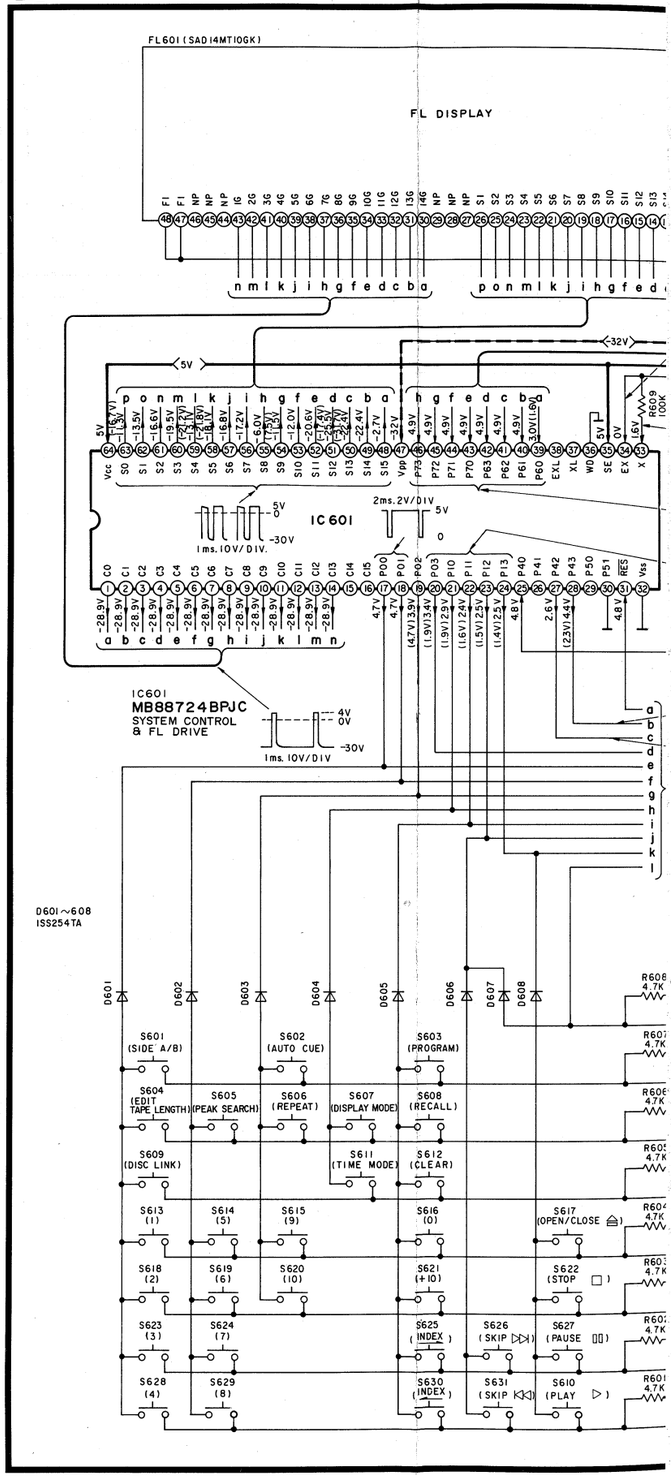
∗1T=0.454ms~0.460ms

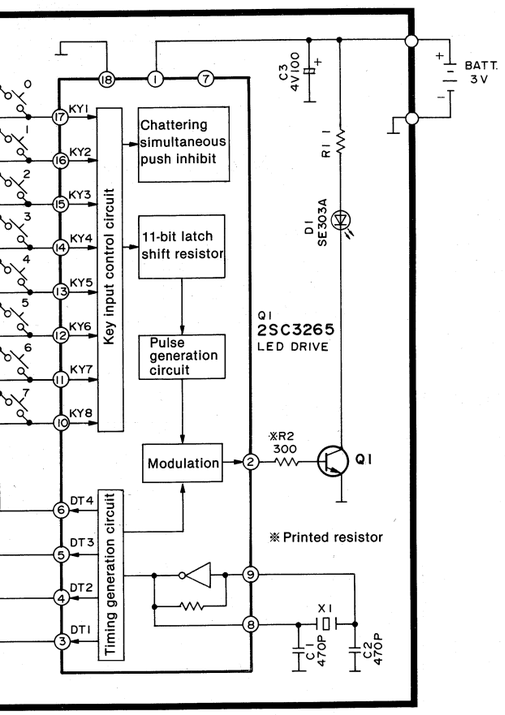


Key No.	Function	Data code	Key No.	Function	Data code
0	▶ play	001010	17	search ▶▶	000101
1	skip ▶▶I	000011	18	2	010001
2	4	010011	19	6	010101
3	8	010111	20	10	110000
4	0	011001	21	clear	001011
5	time mode	101001	22	repeat	000111
6	music scan	001111	23	level ▲	100100
7	auto cue	100011	24	▲ open/close	001110
8	▮▮ pause	000110	25	◀◀ search	000100
9	I◀◀ skip	000010	26	1	010000
10	3	010010	27	5	010100
11	7	010110	28	9	011000
12	+10	011010	29	program	011101
13	recall	001001	30	A-B repeat	001000
14	random	011111	31	▼ level	100101
16	■ stop	000000			

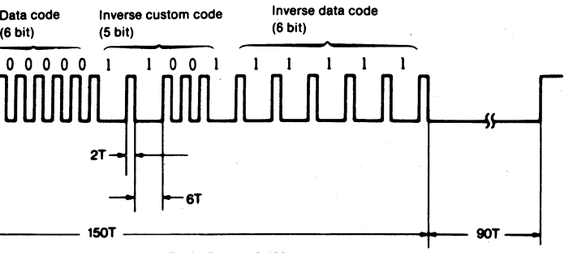
※Custom code: 01100

A OPERATION CIRCUIT





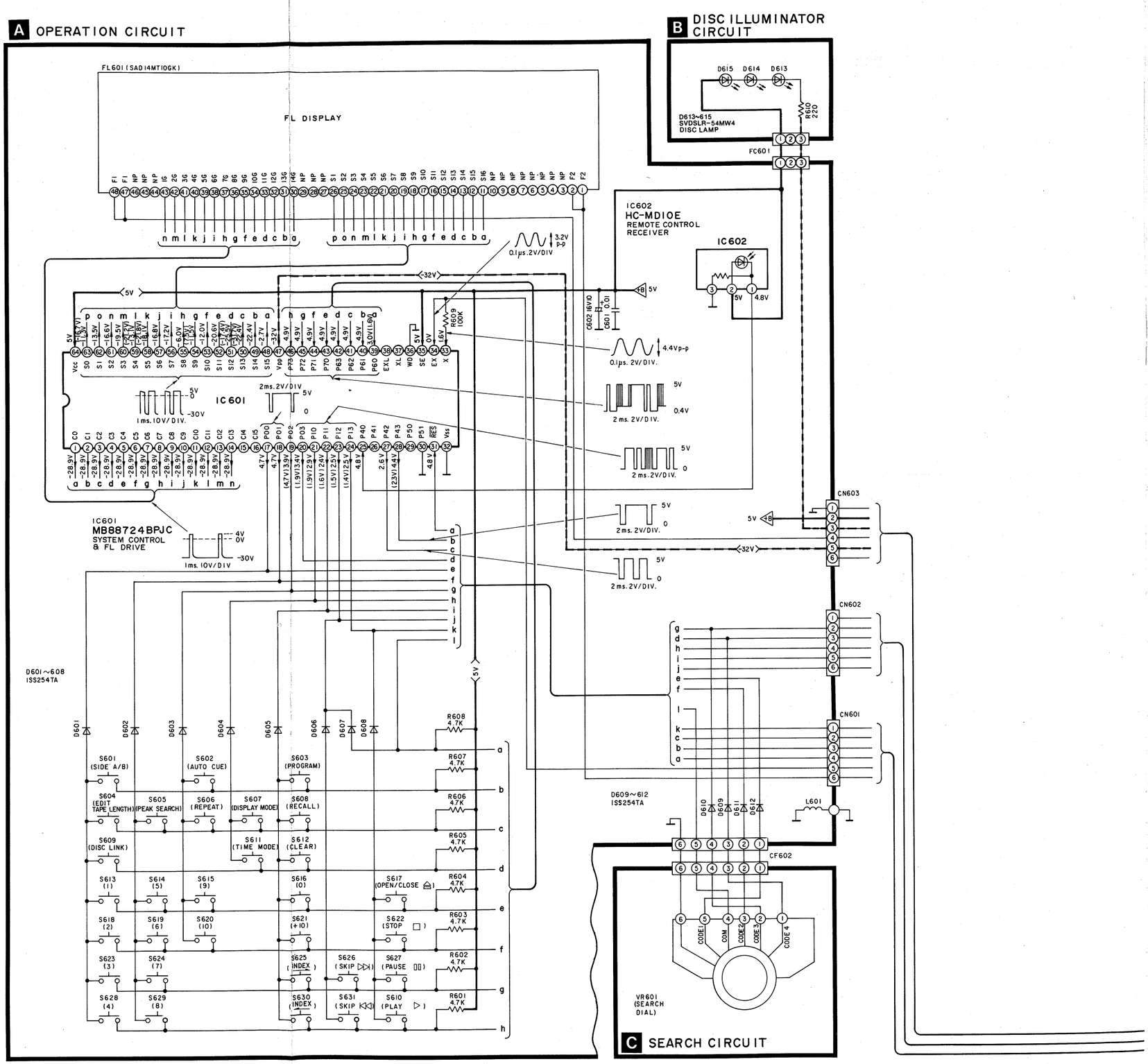
on and data code



※1T=0.454ms~0.460ms

Key No.	Function	Data code	Key No.	Function	Data code
0	▶ play	001010	17	search ▶▶	000101
1	skip ▶▶I	000011	18	2	010001
2	4	010011	19	6	010101
3	8	010111	20	10	110000
4	0	011001	21	clear	001011
5	time mode	101001	22	repeat	000111
6	music scan	001111	23	level ▲	100100
7	auto cue	100011	24	▲ open/close	001110
8	▮▮ pause	000110	25	◀◀ search	000100
9	I◀◀ skip	000010	26	1	010000
10	3	010010	27	5	010100
11	7	010110	28	9	011000
12	+10	011010	29	program	011101
13	recall	001001	30	A-B repeat	001000
14	random	011111	31	▼ level	100101
16	■ stop	000000			

※Custom code: 01100



D SERVO CIRCUIT

Note: Original circuit uses AN8377 for IC103 while the new circuit uses AN8377N for IC103. (Refer to the table below for other changes.)

IC103 Modification	AN8377	AN8377N
IC104	LM2940T5M	Removed
Q102	Removed	2SB1240QR Added
C140	0.01µF	Removed
C145	6V 100µF	Removed
Jumper SJ101	Removed	Shorted

OPTICAL PICKUP

OPTICAL PICK UP

SPEED POSITION SENSOR

(TRAVERSE) (FOCUS) (TRACKING)

CN101

Q101 2SA1547 AUTO POWER CONTROL

IC103 AN8377 FOCUS/TRACKING /TRAVERSE COIL DRIVE (BTL DRIVE)

IC104 LM2940T5M REGULATOR

Q102 2SB1240 SWITCHING

IC102 AN8374S SERVO PROCESSOR

IC101 AN8373S SERVO AMP

CN103

CN102

DC SPINDLE MOTOR

Best eye adj.

Tracking balance adj.

Focus offset adj.

Focus gain adj.

Tracking gain adj.

Tracking offset adj.

To Servo Gain Adjustor

E MOTOR/SWITCH CIRCUIT

LOADING MOTOR

(OPEN/CLOSE DETECTOR) CN701

F MAIN CIRCUIT

CN401

CN402

Q401 2SD1862QRTV3 MOTOR DRIVE

Q402 2SB1240QRTV6 MOTOR DRIVE

IC402(1/2)

Q301 DTC124EST SWITCHING (MUTING CONT.)

IC401 MN1554PEZ-1 SYSTEM CONTROL

IC301 MN6625 DIGITAL SIGNAL PROCESSING

Q403 2SD1862QRTV3 MOTOR DRIVE

Q404 2SB1240QRTV6 MOTOR DRIVE

IC402 BA4558FTI MOTOR DRIVE

Q351 DTA124EST SWITCHING (MOTOR CONT.)

CN303

CN302

CN301

19 20 21 22 23 24 25 26 27 28 29

WITCH

F MAIN CIRCUIT

G POWER SUPPLY CIRCUIT

H HEADPHONES CIRCUIT

Q401 2SD1862QRTV3 MOTOR DRIVE

Q402 2SB1240QRTV6 MOTOR DRIVE

IC401 MN1554PEZ-1 SYSTEM CONTROL

IC13 BA4558FT1 RESET/STABILIZER

Q13 2SD1862QRTV3 REGULATOR

Q11 2SB1240QRTV6 REGULATOR

IC11 LM2940T5 REGULATOR

Q405 DTC124EST RESET

Q12 2SB1238QSTV3 REGULATOR

Q854 DTC124EST SWITCHING CONT.

Q855 DTA124EST SWITCHING CONT.

Q851 DTA114EST MUTING CONT.

Q852 2SA1309QRSTA MUTING CONT.

Q861 2SC3311QRSTA REGULATOR

Q862 2SA1309QRSTA REGULATOR

Q853 DTA124EST SWITCHING (RESET)

IC871 SVINJM4556SA HEADPHONES AMP

Q871,872 2SD1450RSTTA MUTING

Q301 DTC124EST SWITCHING (MUTING CONT.)

Q351 DTA124EST SWITCHING (MOTOR CONT.)

Q403 2SD1862QRTV3 MOTOR DRIVE

Q404 2SB1240QRTV6 MOTOR DRIVE

IC402 BA4558FT1 MOTOR DRIVE

IC301 MN6625 DIGITAL SIGNAL PROCESSING

IC801 MN6471 DIGITAL FILTER/ D/A CONVERTER

IC302 SVICXK5816M 16K RAM

IC802,803,804 LM833M BUFFER AMP

Q801,802 2SC3311QRSTA SWITCHING (EMPHASIS)

IC811,812 SVIH8DN2175 LOW PASS FILTER

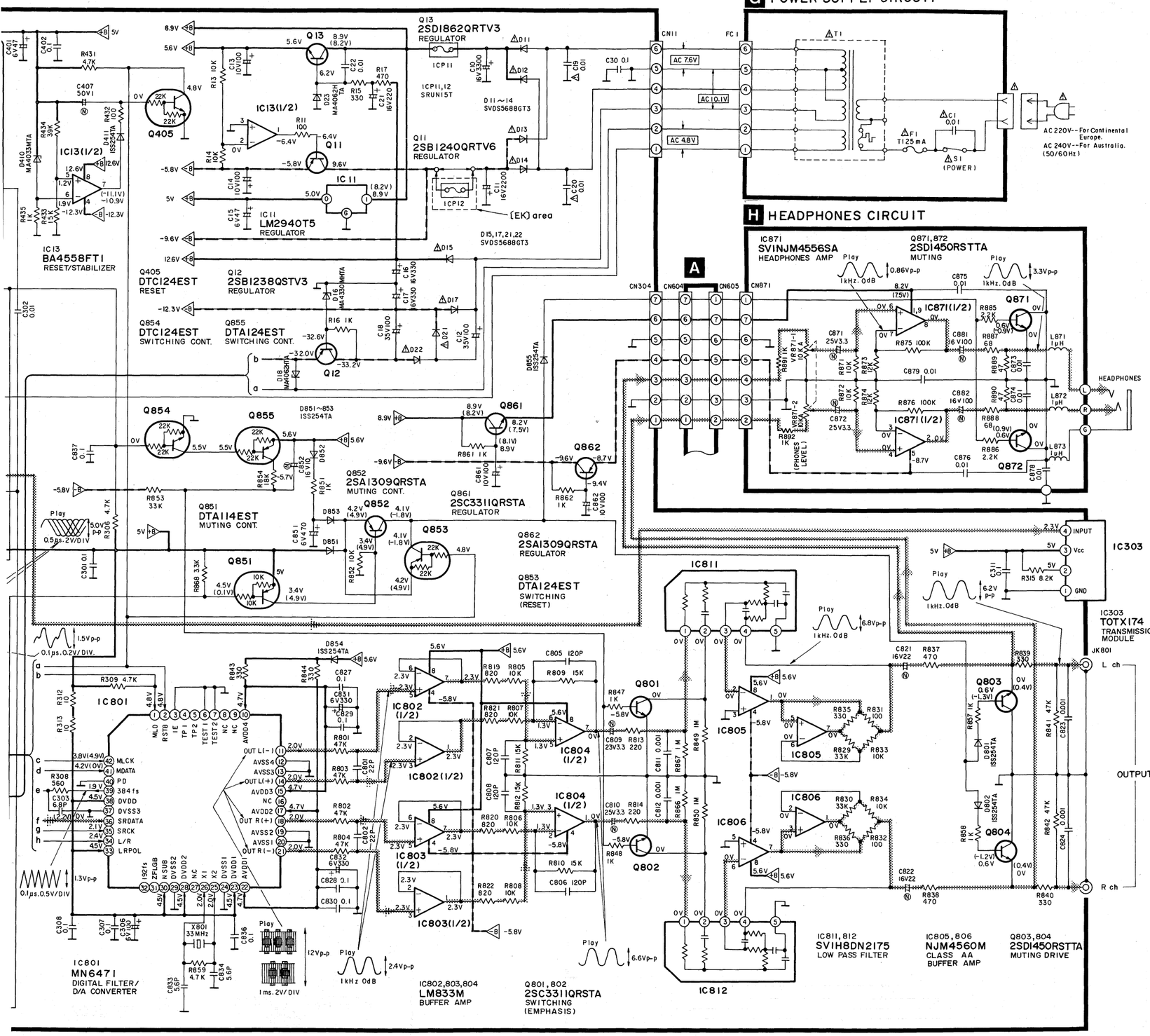
IC805,806 NJM4560M CLASS AA BUFFER AMP

— 34 —

— 35 —

— 36 —

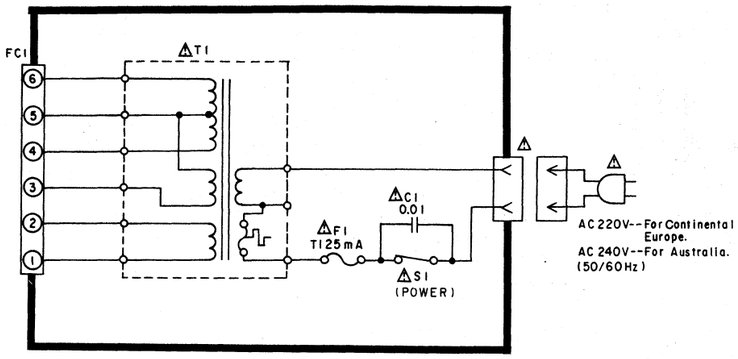
24 25 26 27 28 29 30 31 32 33 34



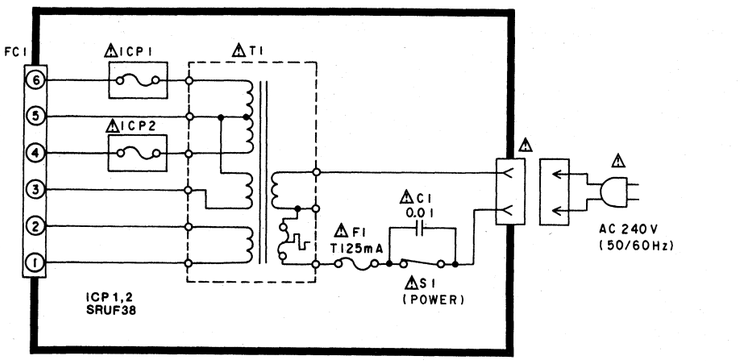
— 35 —

— 36 —

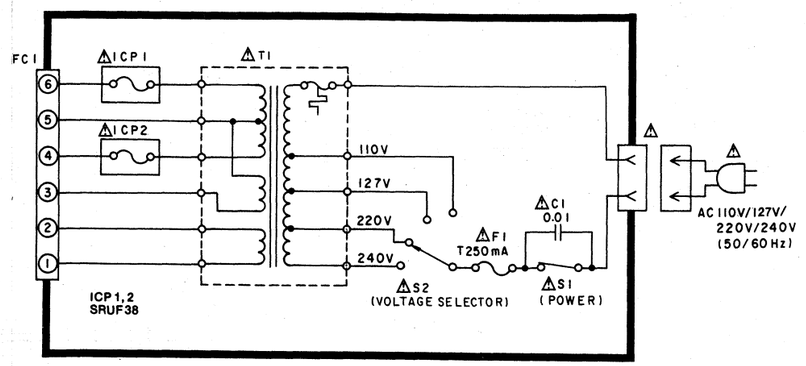
- **Power supply circuit for (E), (XL), (EG), (EB), (EH) and (Ei) areas.**



- **Power supply circuit for (EK) area.**

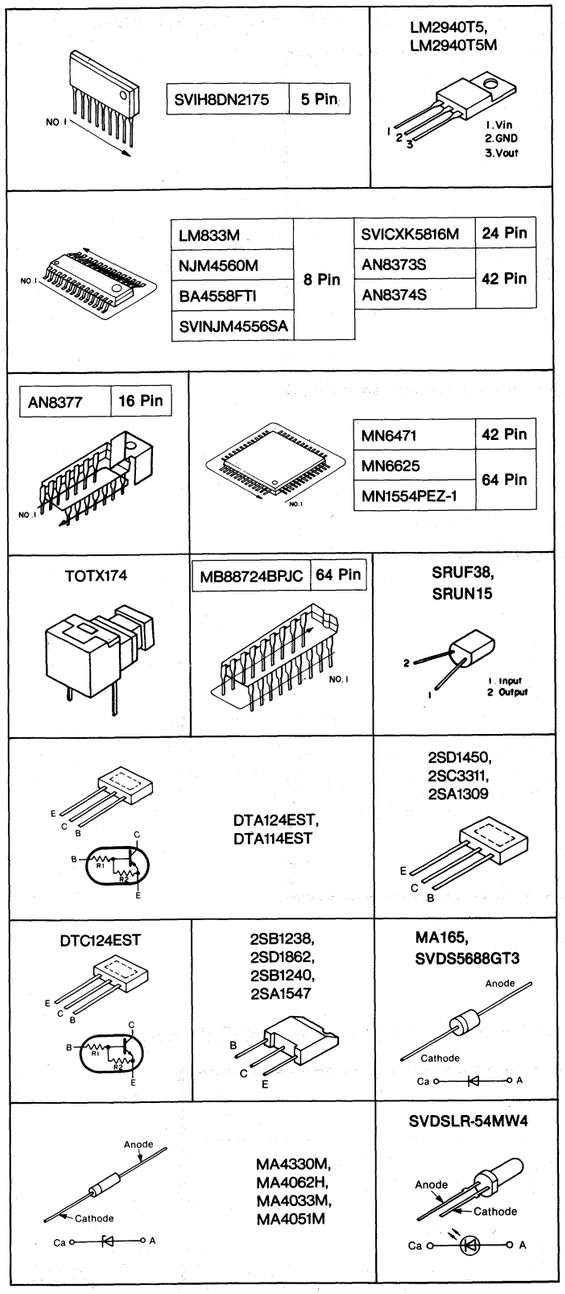


- **Power supply circuit for (XA), (XB), (PA), (PE) and (PC) areas.**

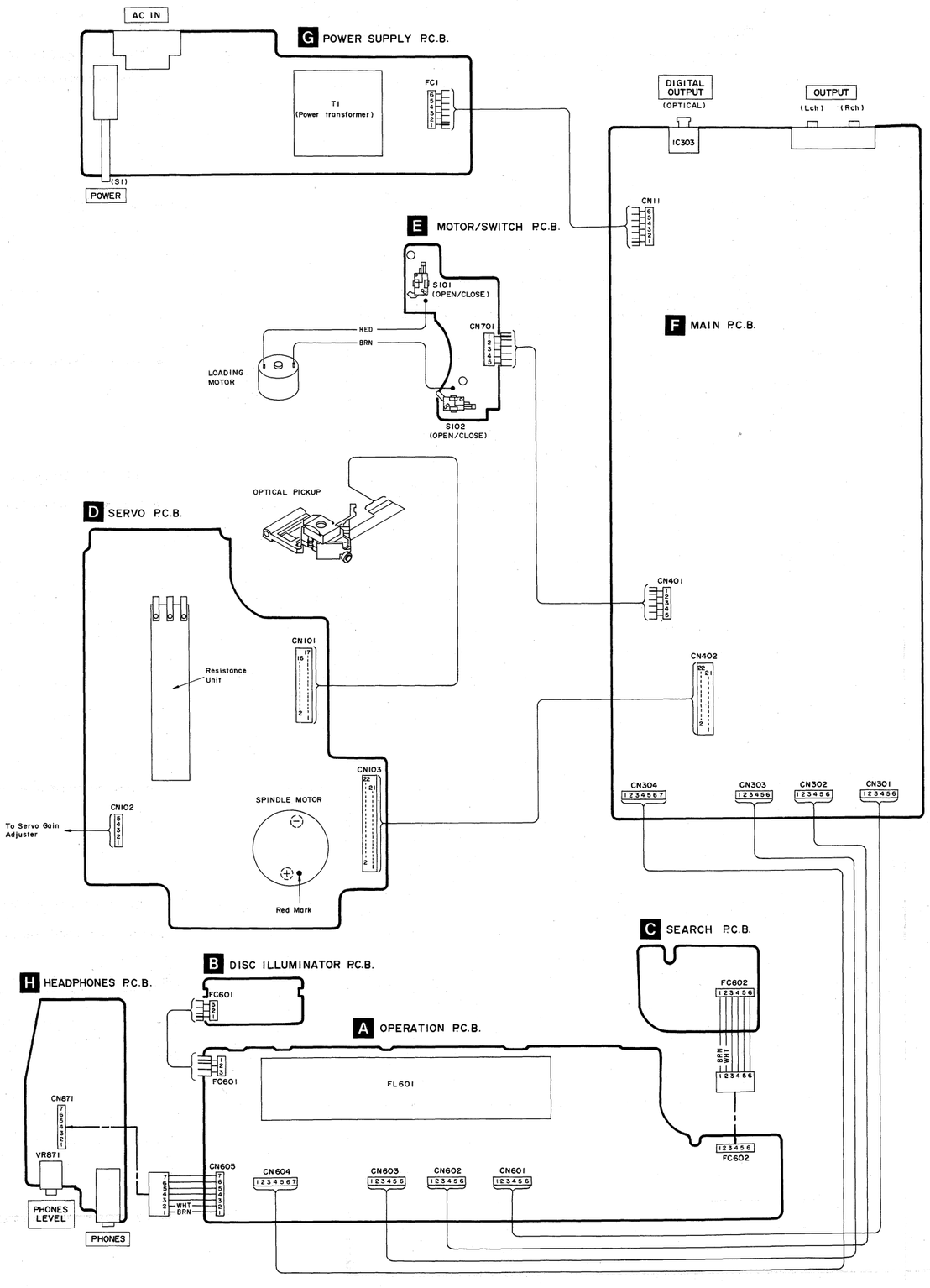


— 37 —

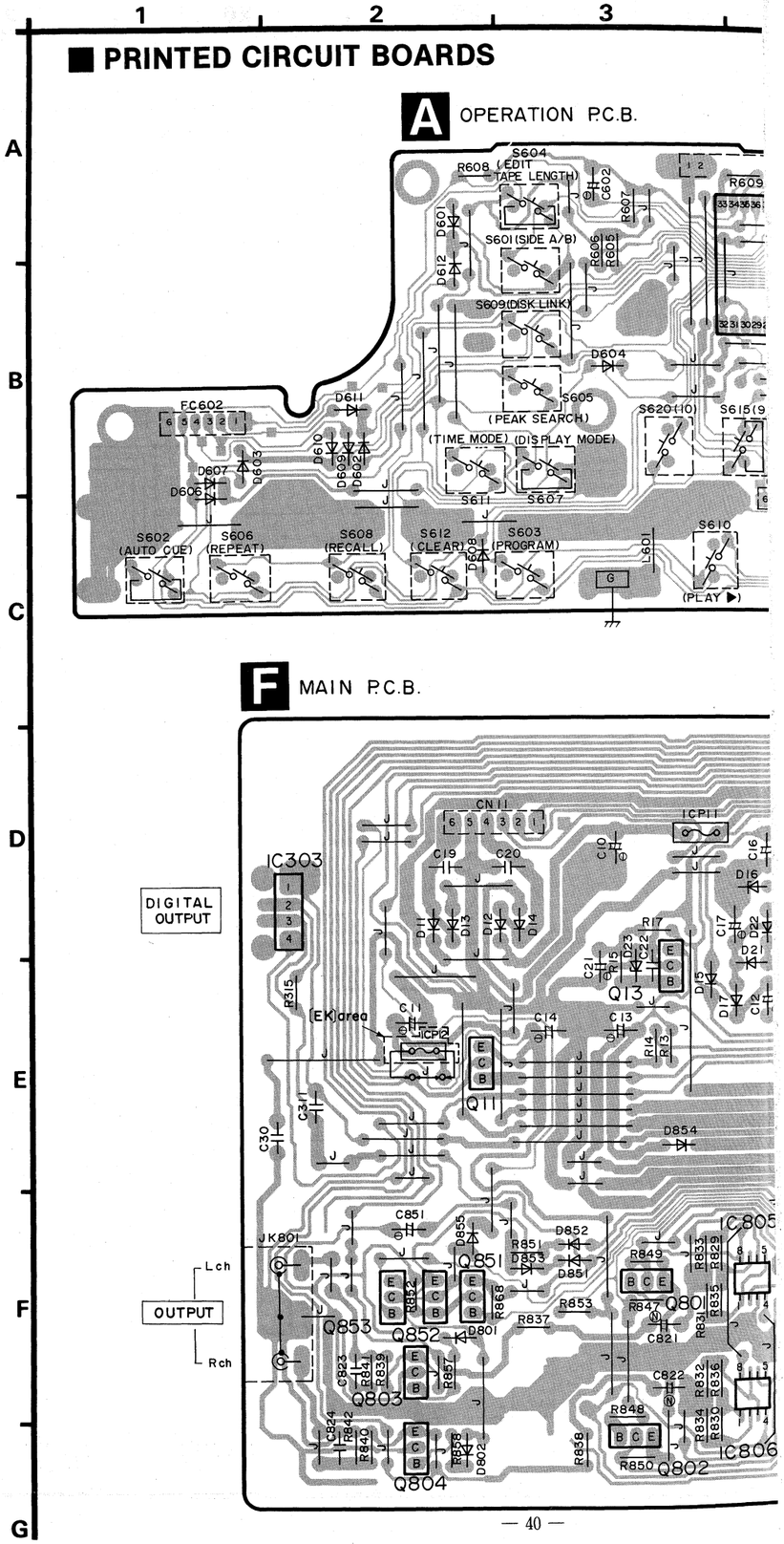
■ TERMINAL GUIDE OF IC's, TRANSISTORS AND DIODES



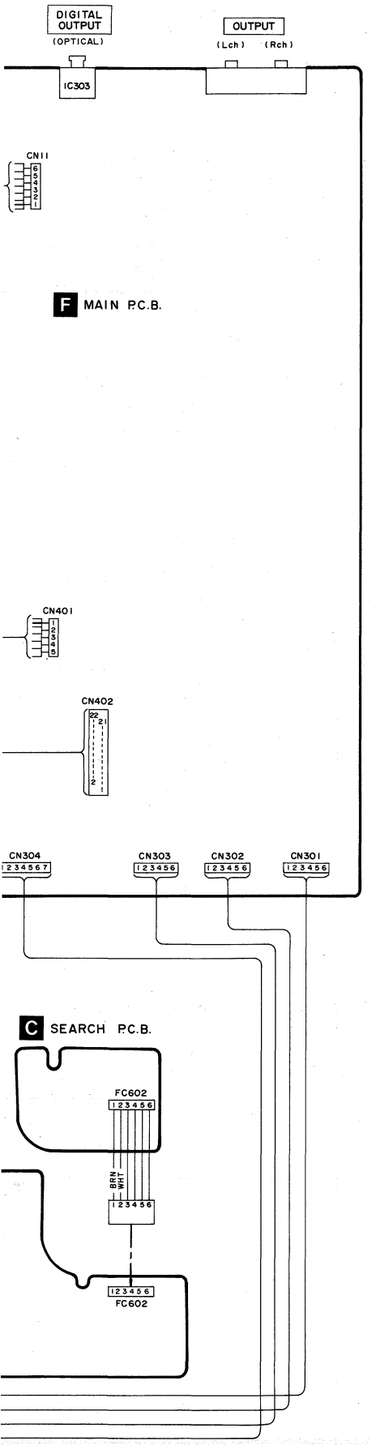
■ WIRING CONNECTION DIAGRAM



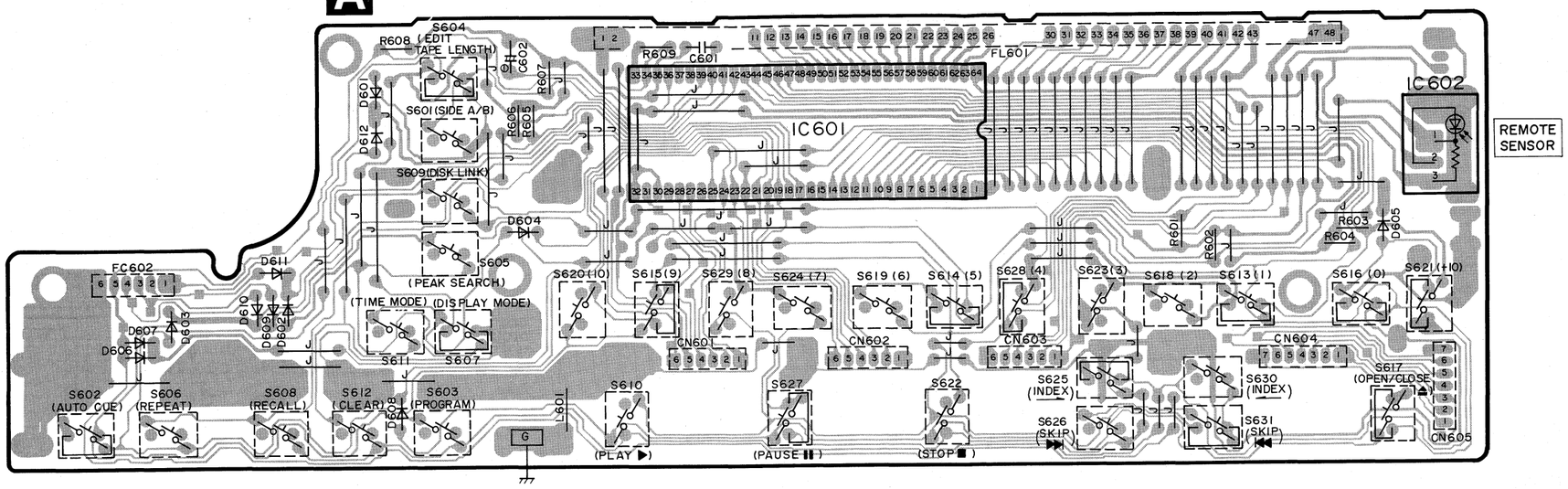
■ PRINTED CIRCUIT BOARDS



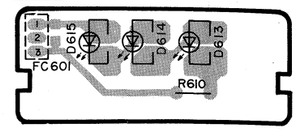
■ PRINTED CIRCUIT BOARDS



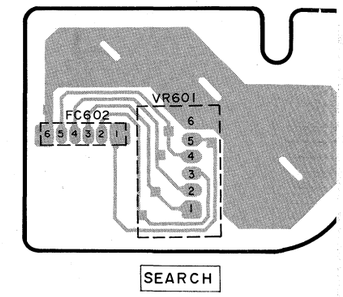
A OPERATION P.C.B.



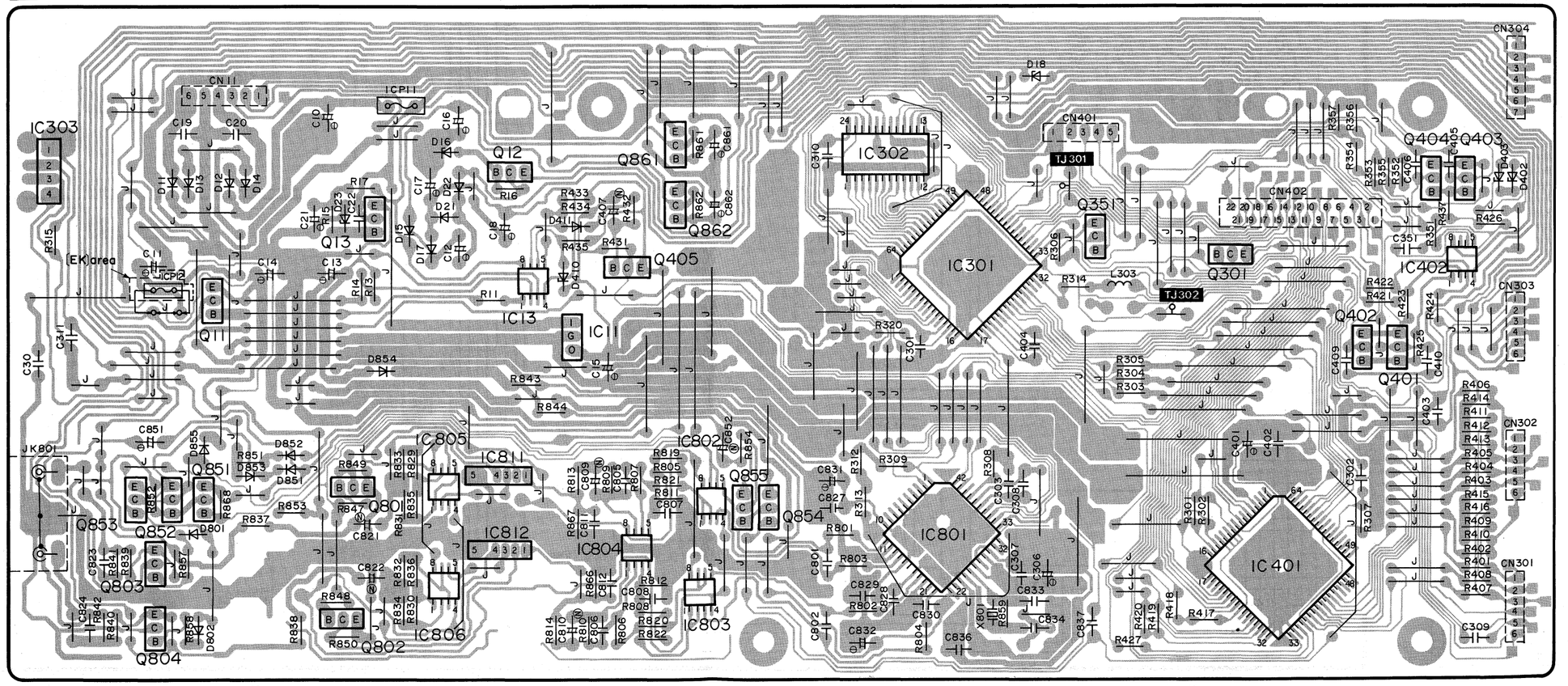
B DISC ILLUMINATOR P.C.B.



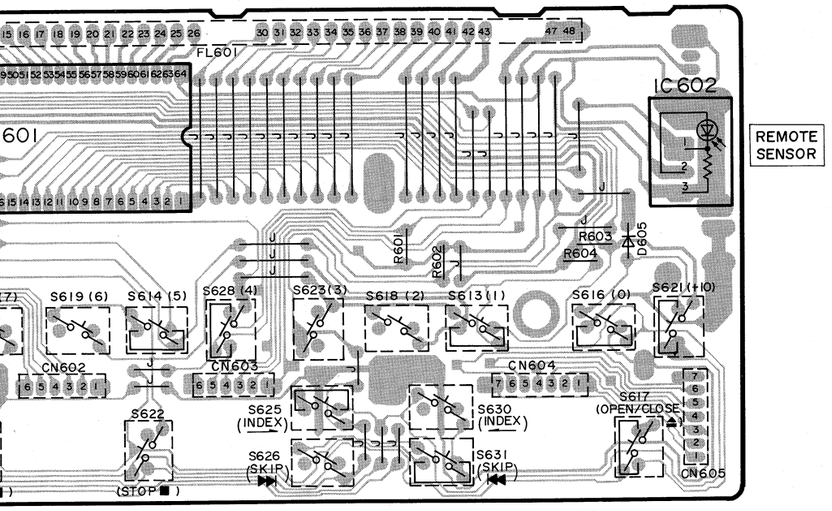
C SEARCH P.C.B.



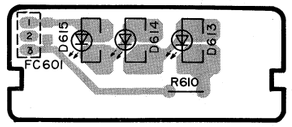
F MAIN P.C.B.



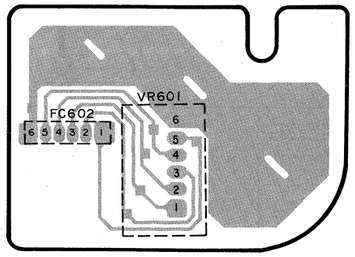
5 6 7 8 9 10 11 12 13 14



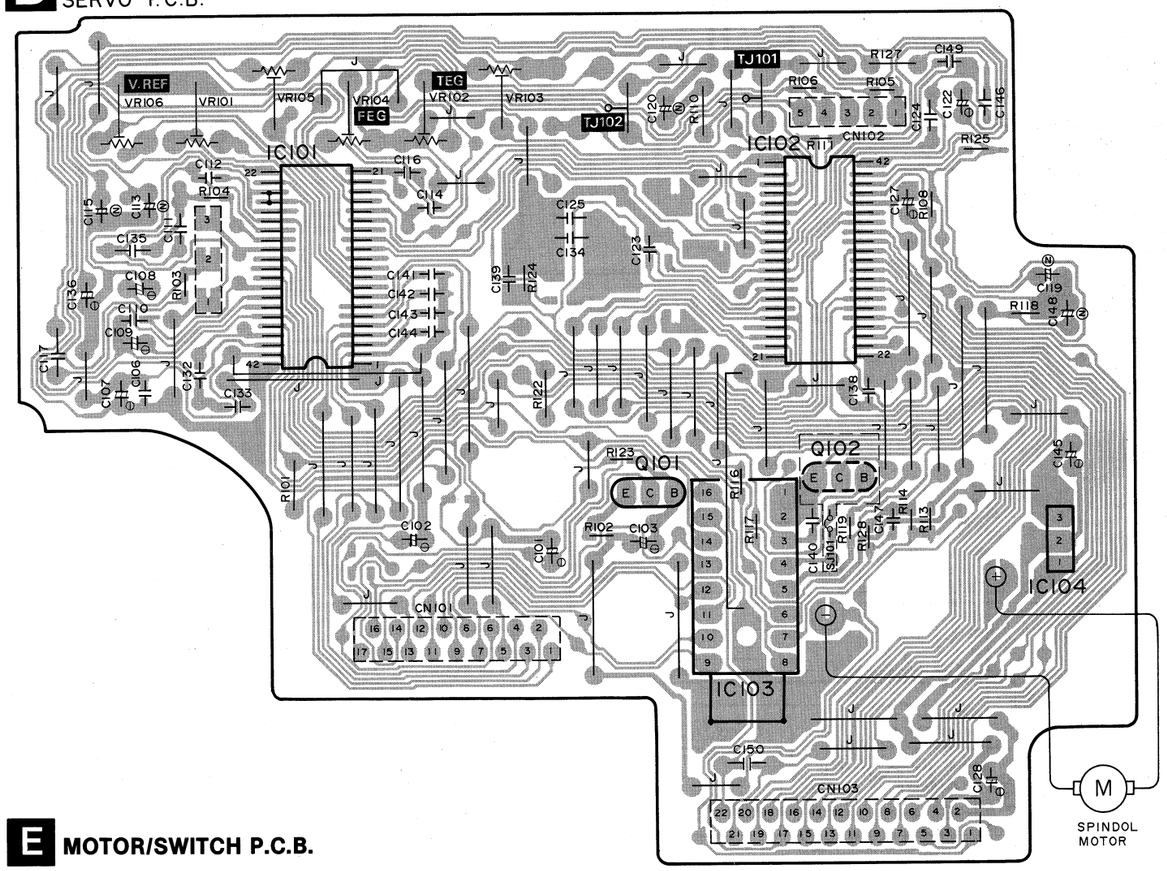
B DISC ILLUMINATOR P.C.B.

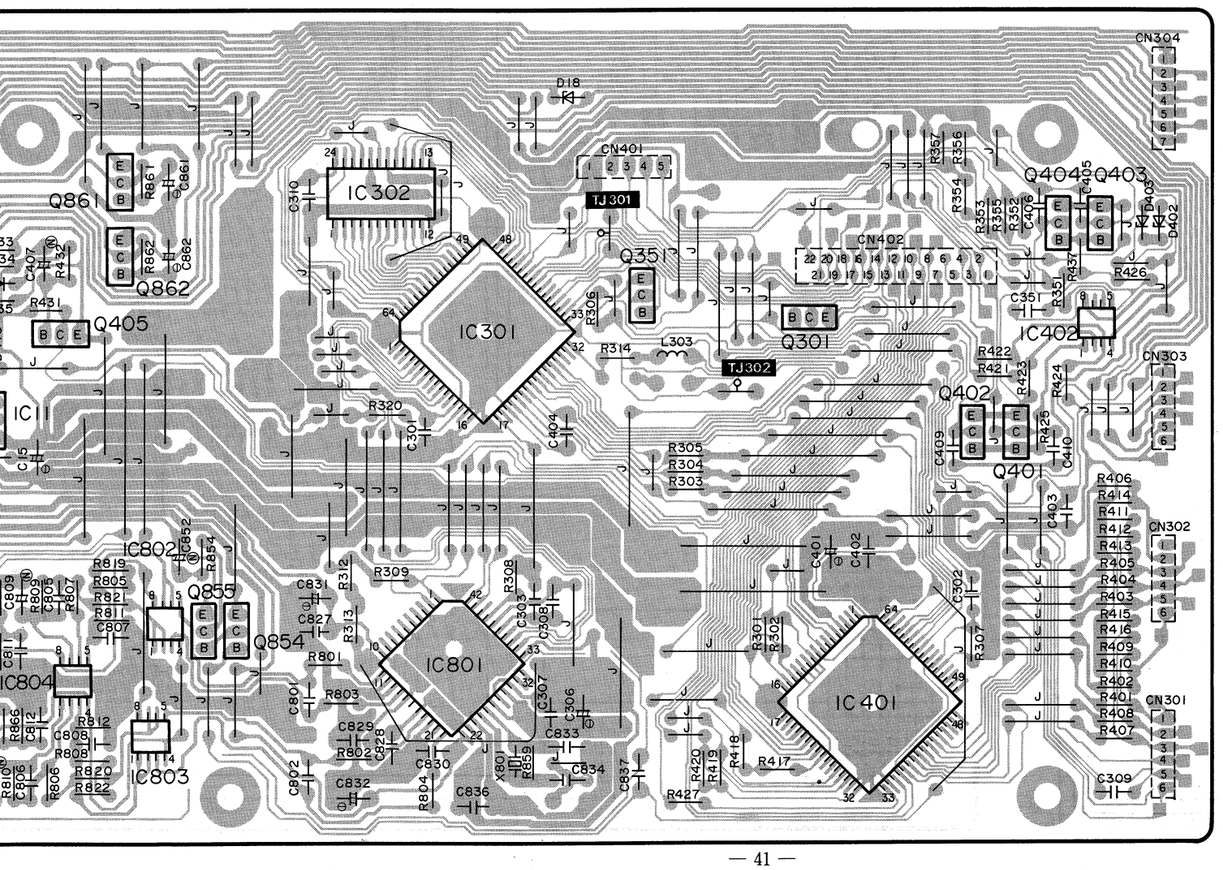


C SEARCH P.C.B.

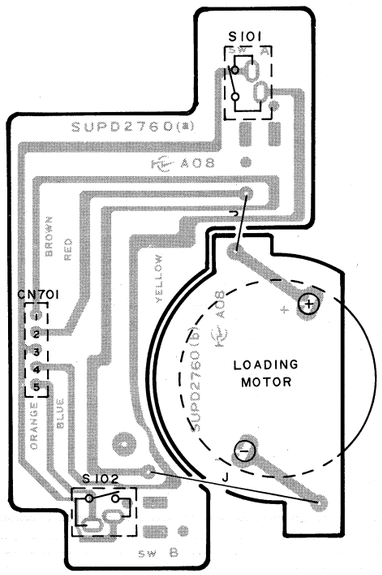


D SERVO P.C.B.





E MOTOR/SWITCH P.C.B.



Note: Original circuit uses AN8377 for IC103 while the new circuit uses AN8377N for IC103. (Refer to the table below for other changes.)

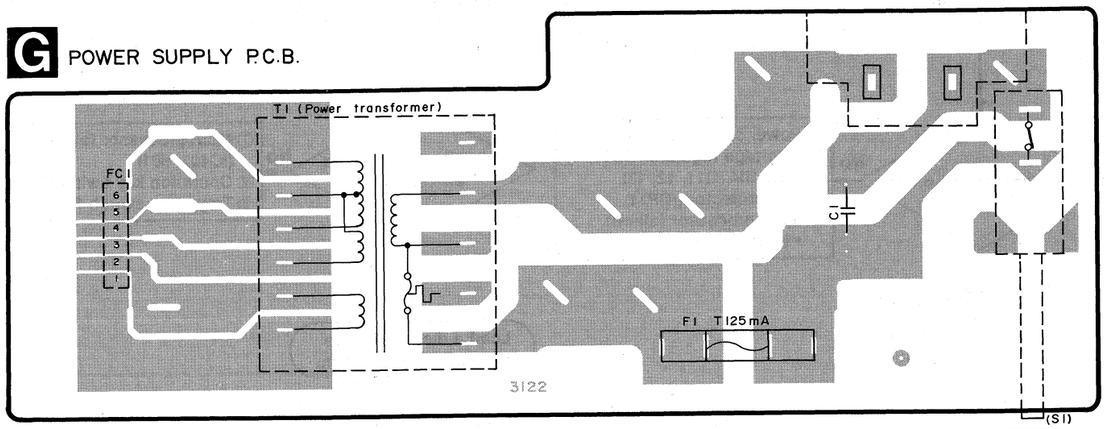
IC103 / Modifications	AN8377	AN8377N
IC104	LM2940T5M	Removed
Q102	Removed	2SB1240QR Added
C140	0.01µF	Removed
C145	6V 100µF	Removed
Jumper SJ101	Removed	Shorted

15 16 17 18 19 20 21 22 23 24

• **For (E), (XL), (EG), (EB), (EH) and (Ei) areas.**

AC IN
(220V 50/60Hz ··· For continental Europe)
(240V 50/60Hz ··· For Australia)

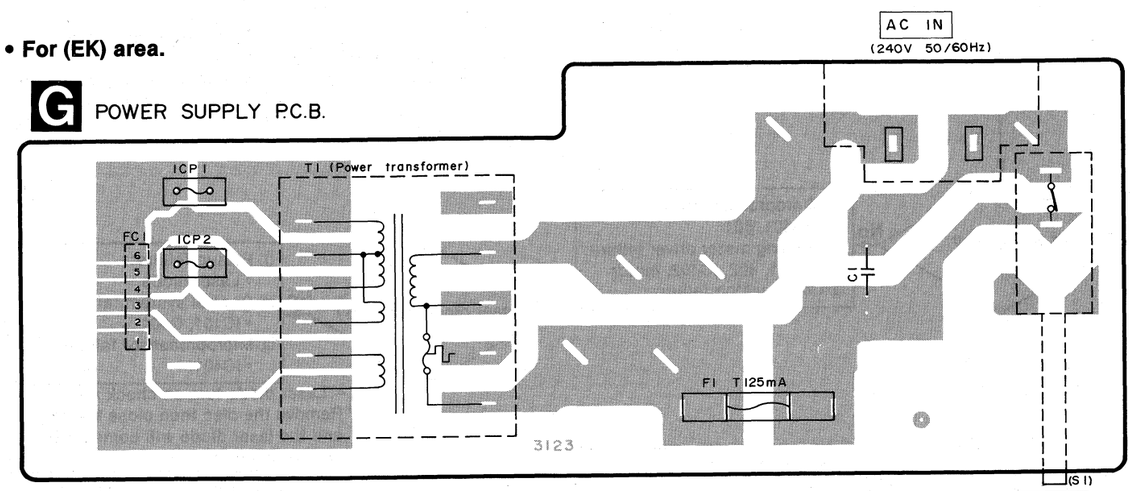
G POWER SUPPLY P.C.B.



• **For (EK) area.**

AC IN
(240V 50/60Hz)

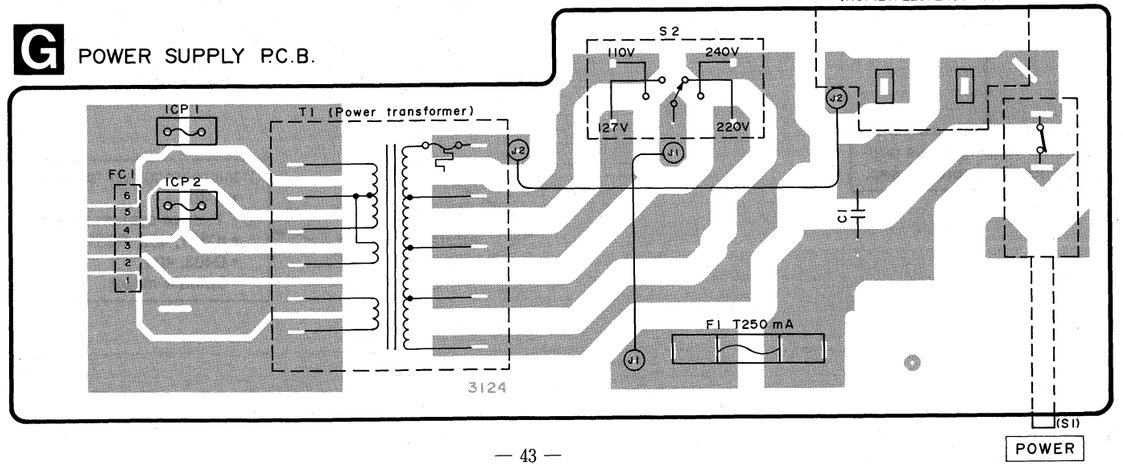
G POWER SUPPLY P.C.B.



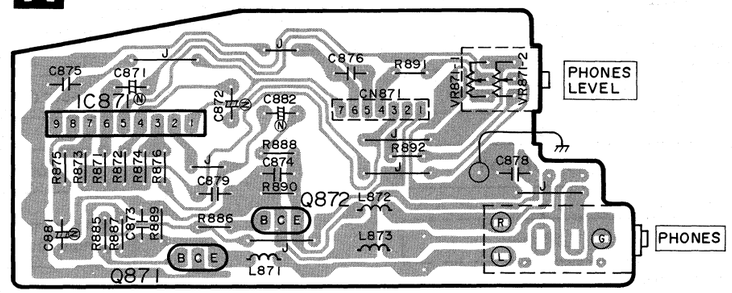
• **For (XA), (XB), (PA), (PE) and (PC) areas.**

VOLTAGE SELECTOR
AC IN
(110/127/220/240V 50/60Hz)

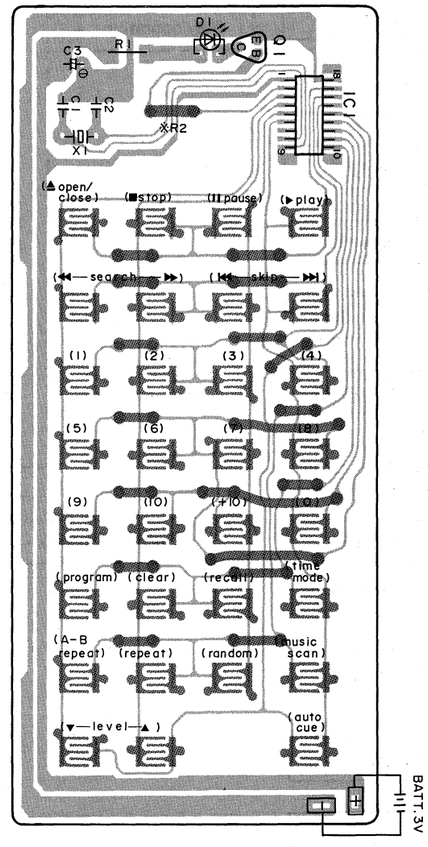
G POWER SUPPLY P.C.B.



H HEADPHONES P.C.B.



• **Remote control transmitter**

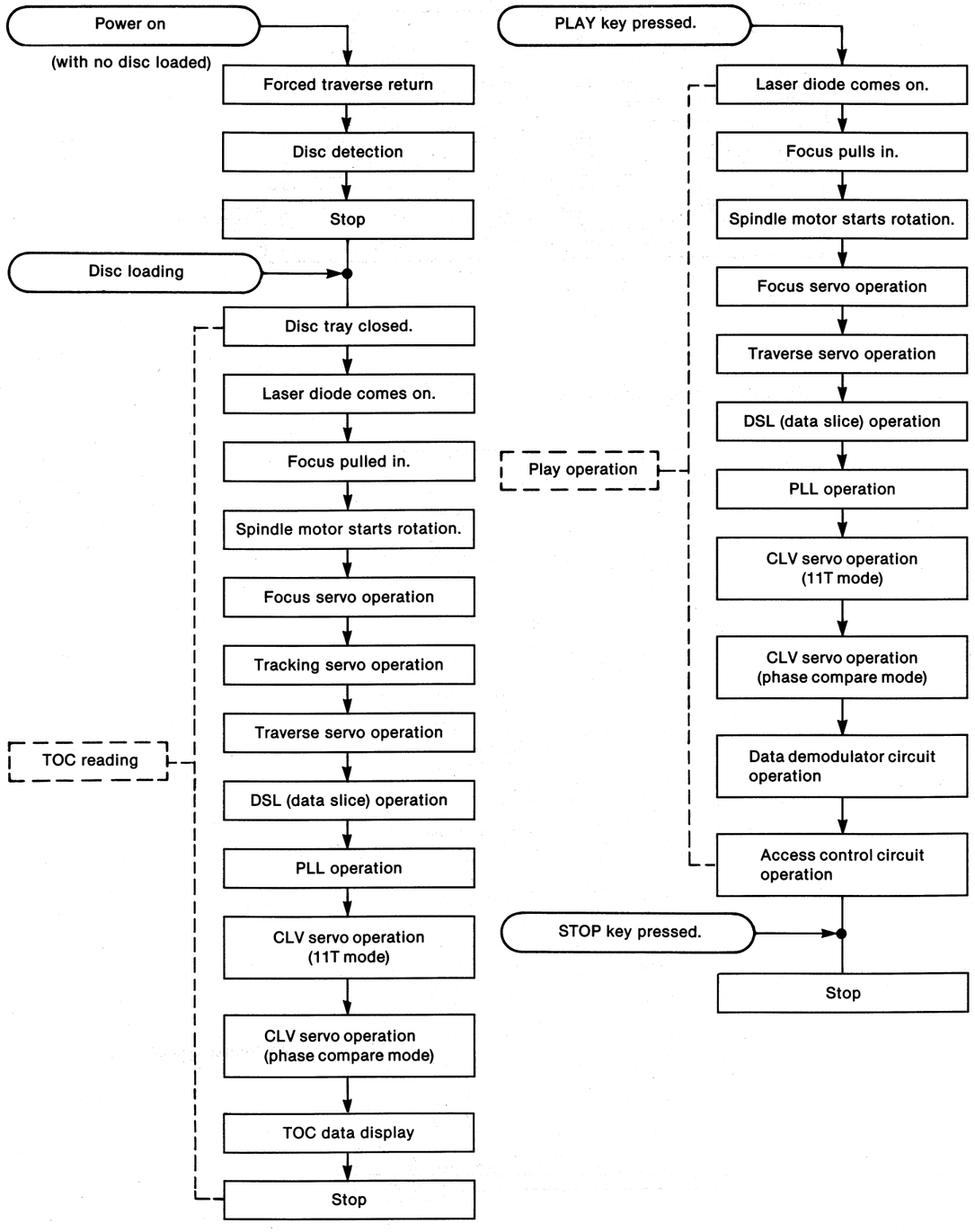


※ **R2: Printed resistor**

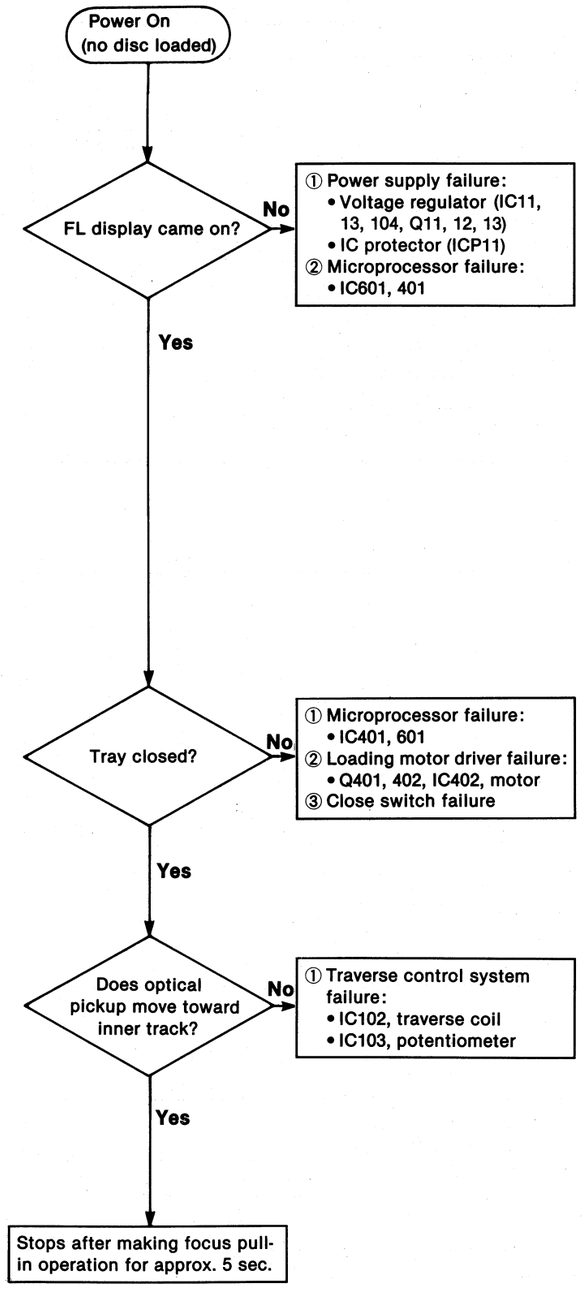
■ TROUBLESHOOTING GUIDE

SL-P555 Operation Sequence Check Sheet

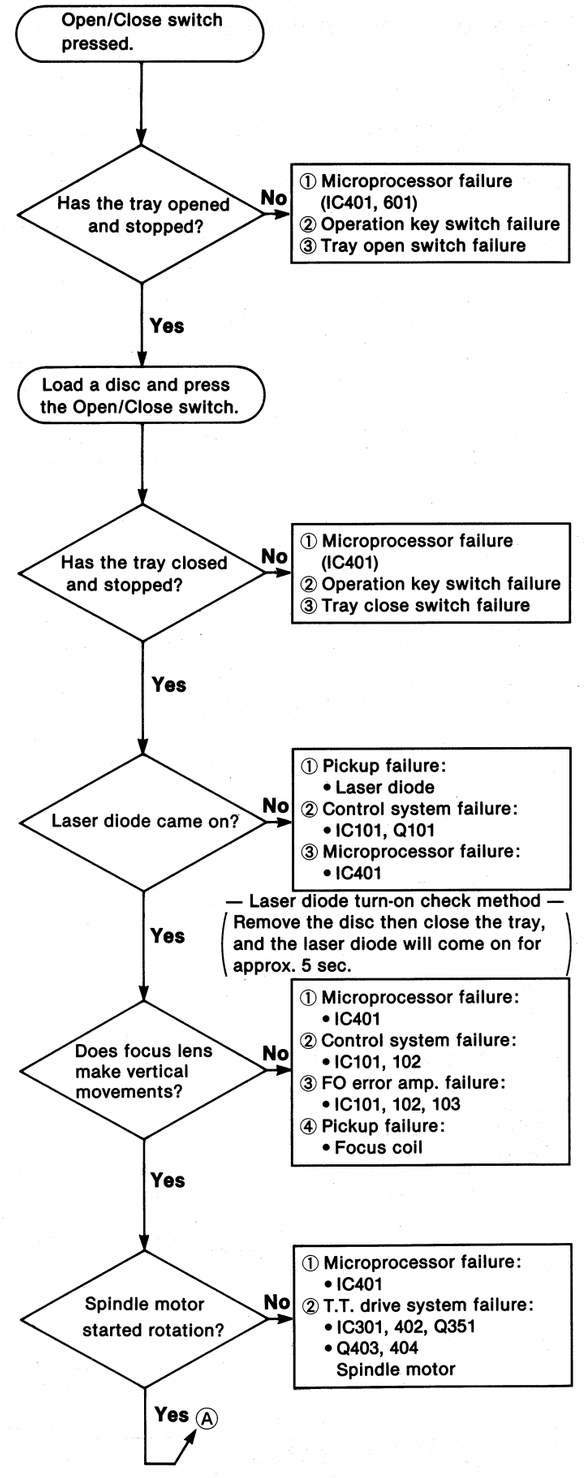
Play Operation Sequence



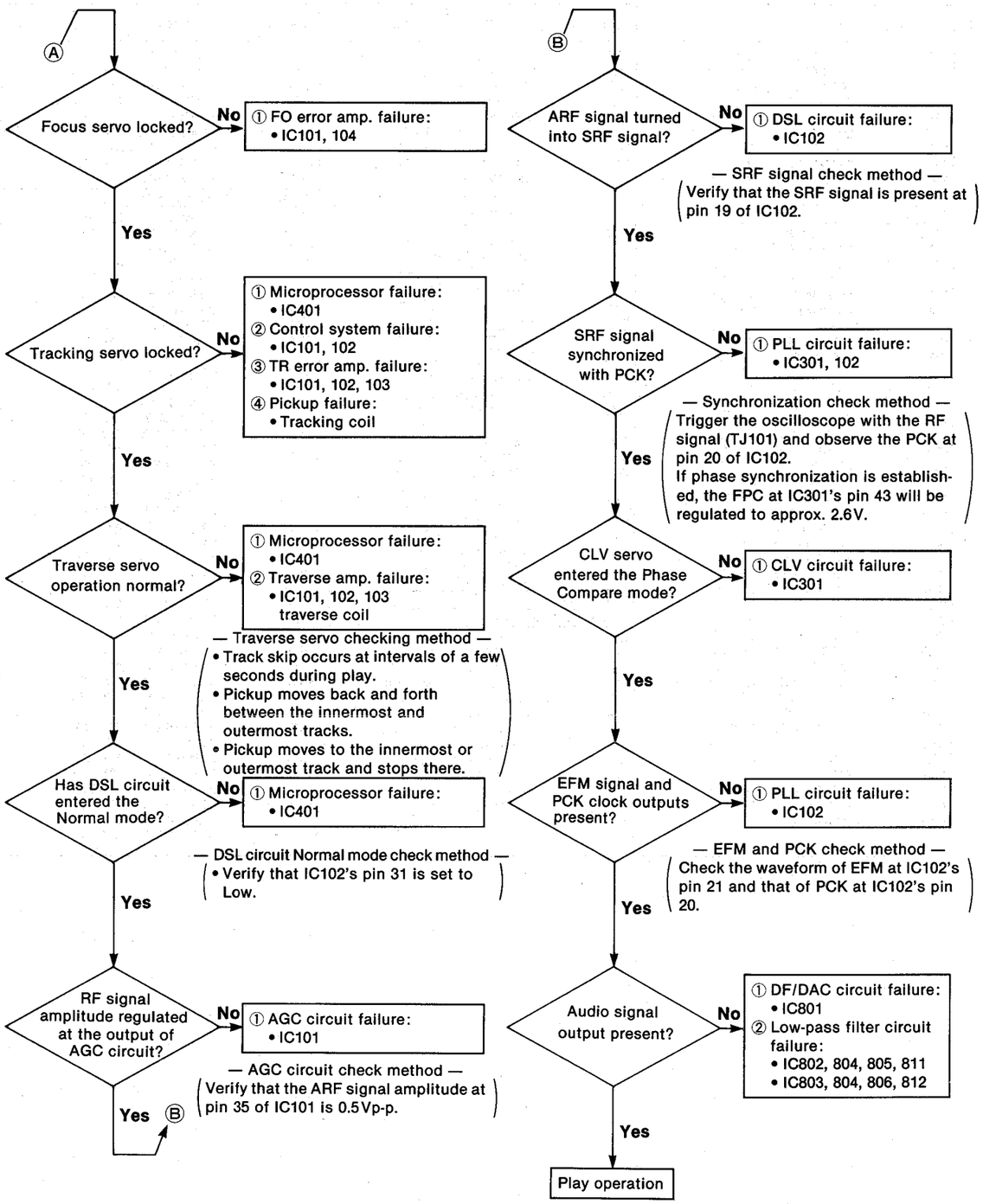
(Operation Sequence Just After Power On)



(TOC Read Operation-PLAY Operation)

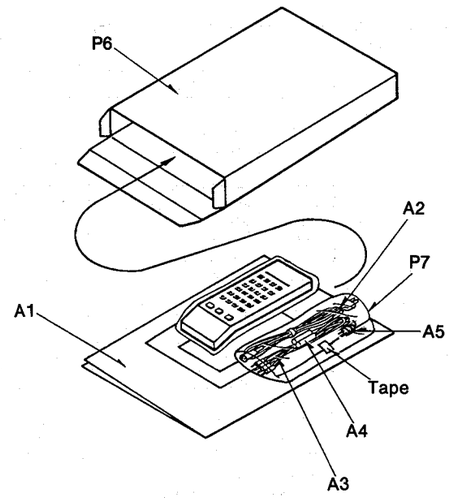


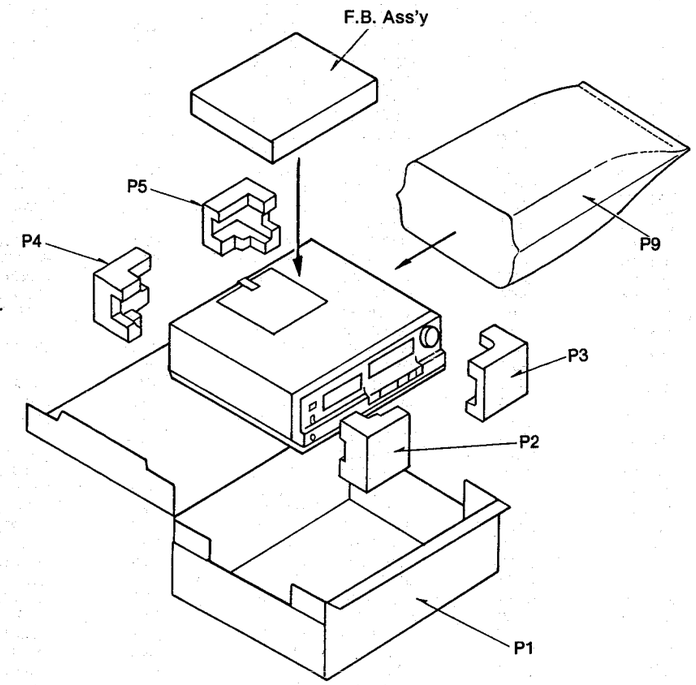
D


Ⓐ
Focus servo locked?
No
① FO error amp. failure:
• IC101, 104
Yes
Tracking servo locked?
No
① Microprocessor failure:
• IC401
② Control system failure:
• IC101, 102
③ TR error amp. failure:
• IC101, 102, 103
④ Pickup failure:
• Tracking coil
Yes
Traverse servo operation normal?
No
① Microprocessor failure:
• IC401
② Traverse amp. failure:
• IC101, 102, 103
traverse coil
— Traverse servo checking method —
• Track skip occurs at intervals of a few seconds during play.
• Pickup moves back and forth between the innermost and outermost tracks.
• Pickup moves to the innermost or outermost track and stops there.
Yes
Has DSL circuit entered the Normal mode?
No
① Microprocessor failure:
• IC401
— DSL circuit Normal mode check method —
• Verify that IC102's pin 31 is set to Low.
Yes
RF signal amplitude regulated at the output of AGC circuit?
No
① AGC circuit failure:
• IC101
— AGC circuit check method —
Verify that the ARF signal amplitude at pin 35 of IC101 is 0.5Vp-p.
Yes Ⓑ
Ⓑ
ARF signal turned into SRF signal?
No
① DSL circuit failure:
• IC102
— SRF signal check method —
Verify that the SRF signal is present at pin 19 of IC102.
Yes
SRF signal synchronized with PCK?
No
① PLL circuit failure:
• IC301, 102
— Synchronization check method —
Trigger the oscilloscope with the RF signal (TJ101) and observe the PCK at pin 20 of IC102.
If phase synchronization is established, the FPC at IC301's pin 43 will be regulated to approx. 2.6V.
Yes
CLV servo entered the Phase Compare mode?
No
① CLV circuit failure:
• IC301
Yes
EFM signal and PCK clock outputs present?
No
① PLL circuit failure:
• IC102
— EFM and PCK check method —
Check the waveform of EFM at IC102's pin 21 and that of PCK at IC102's pin 20.
Yes
Audio signal output present?
No
① DF/DAC circuit failure:
• IC801
② Low-pass filter circuit failure:
• IC802, 804, 805, 811
• IC803, 804, 806, 812
Yes
Play operation

■ PACKING

• **F.B. Ass'y**





■ RESISTORS & CAPACITORS

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Numbering System For Resistors

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Numbering System For Capacitors

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001μF)	Tolerance	Unique
ECEA	50	M		330
Type	Voltage (50V)	Characteristics		Value (33μF)

- Capacity values are in microfarads (μF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
- Resistance values are in ohms (Ω), unless specified otherwise, 1K = 1,000Ω, 1M = 1,000kΩ

Resistor Type		Wattage		Tolerance
ERD	: Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG	: Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ	: Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX	: Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L	: Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K	: Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC	: Solid	6G : 1/10W	8G : 1/8W	
ERF	: Incombustible Box-Shaped			
ERM	: Wire-Wound			
RRJ	: Chip Resistor			
ERJ	: Chip Resistor			

Capacitor Type		Voltage		Tolerance
ECE	: Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD	: Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD	: Ceramic Capacitor	1H : 50V	1V : 35V	Z : +80 −20 %
ECQM	: Polyester	50 : 50V	05 : 50V	J : ±5%
ECQP	: Polypropylene	2H : 500V	2A : 100V	G : ±2%
ECG	: Ceramic	1 : 100V	1J : 63V	F : ±1%
ECEA N	: Non Polar Electrolytic	KC : 400V AC		C : ±0.25pF
QCU	: Ceramic (Chip Type)	KC : 125V AC (UL)		D : ±0.5pF
ECUX	: Ceramic (Chip Type)			
ECF	: Semiconductor			
EECW	: Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R11	ERDS2TJ101	100 1/4
R13	ERDS2TJ103	10K 1/4
R14	ERDS2TJ103	10K 1/4
R15	ERDS2TJ331	330 1/4
R16	ERDS2TJ102	1K 1/4
R17	ERDS2TJ471	470 1/4
R301	ERDS2TJ472	4.7K 1/4
R302	ERDS2TJ472	4.7K 1/4
R303	ERDS2TJ472	4.7K 1/4
R304	ERDS2TJ472	4.7K 1/4
R305	ERDS2TJ472	4.7K 1/4
R306	ERDS2TJ472	4.7K 1/4
R307	ERDS2TJ104	100K 1/4
R308	ERDS2TJ561	560 1/4
R309	ERDS2TJ472	4.7K 1/4
R312	ERDS2TJ100	10 1/4
R313	ERDS2TJ100	10 1/4
R314	ERDS2TJ331	330 1/4
R315	ERDS2TJ822	8.2K 1/4
R320	ERDS2TJ331	330 1/4
R351	ERDS2TJ103	10K 1/4
R352	ERDS2TJ154	150K 1/4
R353	ERDS2TJ123	12K 1/4
R354	ERDS2TJ154	150K 1/4
R355	ERDS2TJ333	33K 1/4
R356	ERDS2TJ333	33K 1/4
R357 ⚠	ERD25FVJ8R2T	8.2 1/4
R401	ERDS2TJ221	220 1/4
R402	ERDS2TJ221	220 1/4
R403	ERDS2TJ221	220 1/4
R404	ERDS2TJ221	220 1/4
R405	ERDS2TJ221	220 1/4
R406	ERDS2TJ221	220 1/4
R407	ERDS2TJ221	220 1/4
R408	ERDS2TJ221	220 1/4
R409	ERDS2TJ472	4.7K 1/4
R410	ERDS2TJ472	4.7K 1/4
R411	ERDS2TJ472	4.7K 1/4
R412	ERDS2TJ472	4.7K 1/4
R413	ERDS2TJ472	4.7K 1/4
R414	ERDS2TJ472	4.7K 1/4
R415	ERDS2TJ472	4.7K 1/4
R416	ERDS2TJ472	4.7K 1/4
R417	ERDS2TJ472	4.7K 1/4
R418	ERDS2TJ472	4.7K 1/4
R419	ERDS2TJ472	4.7K 1/4
R420	ERDS2TJ472	4.7K 1/4
R421	ERDS2TJ913T	91K 1/4
R422	ERDS2TJ913T	91K 1/4
R423	ERDS2TJ124	120K 1/4
R424	ERDS2TJ124	120K 1/4
R425	ERDS2TJ101	100 1/4
R426	ERDS2TJ101	100 1/4
R427	ERDS2TJ472	4.7K 1/4
R431	ERDS2TJ472	4.7K 1/4
R432	ERDS2TJ101	100 1/4
R433	ERDS2TJ153	15K 1/4
R434	ERDS2TJ393	39K 1/4
R435	ERDS2TJ102	1K 1/4
R437	ERDS2TJ101	100 1/4
R601	ERDS2TJ472	4.7K 1/4
R602	ERDS2TJ472	4.7K 1/4
R603	ERDS2TJ472	4.7K 1/4
R604	ERDS2TJ472	4.7K 1/4
R605	ERDS2TJ472	4.7K 1/4
R606	ERDS2TJ472	4.7K 1/4
R607	ERDS2TJ472	4.7K 1/4
R608	ERDS2TJ472	4.7K 1/4
R609	ERDS2TJ104	100K 1/4
R610	ERDS2TJ221	220 1/4
R801	ERDS2TJ473	47K 1/4
R802	ERDS2TJ473	47K 1/4
R803	ERDS2TJ473	47K 1/4
R804	ERDS2TJ473	47K 1/4
R805	ERDS2TJ103	10K 1/4
R806	ERDS2TJ103	10K 1/4
R807	ERDS2TJ103	10K 1/4
R808	ERDS2TJ103	10K 1/4
R809	ERDS2TJ153	15K 1/4
R810	ERDS2TJ153	15K 1/4
R811	ERDS2TJ153	15K 1/4
R812	ERDS2TJ153	15K 1/4
R813	ERDS2TJ221	220 1/4
R814	ERDS2TJ221	220 1/4
R819	ERDS2TJ821	820 1/4
R820	ERDS2TJ821	820 1/4
R821	ERDS2TJ821	820 1/4
R822	ERDS2TJ821	820 1/4
R829	ERDS2TJ333	33K 1/4
R830	ERDS2TJ333	33K 1/4
R831	ERDS2TJ101	100 1/4
R832	ERDS2TJ101	100 1/4
R833	ERDS2TJ103	10K 1/4
R834	ERDS2TJ103	10K 1/4
R835	ERDS2TJ331	330 1/4
R836	ERDS2TJ331	330 1/4
R837	ERDS2TJ471	470 1/4
R838	ERDS2TJ471	470 1/4
R839	ERDS2TJ331	330 1/4
R840	ERDS2TJ331	330 1/4
R841	ERDS2TJ473	47K 1/4
R842	ERDS2TJ473	47K 1/4
R843	ERDS2TJ331	330 1/4
R844	ERDS2TJ331	330 1/4
R847	ERDS2TJ102	1K 1/4
R848	ERDS2TJ102	1K 1/4
R849	ERDS2TJ105	1M 1/4
R850	ERDS2TJ105	1M 1/4
R851	ERDS2TJ102	1K 1/4
R852	ERDS2TJ103	10K 1/4
R853	ERDS2TJ333	33K 1/4
R854	ERDS2TJ183	18K 1/4
R857	ERDS2TJ102	1K 1/4
R858	ERDS2TJ102	1K 1/4
R859	ERDS2TJ472	4.7K 1/4
R861	ERDS2TJ102	1K 1/4
R862	ERDS2TJ102	1K 1/4
R866	ERDS2TJ105	1M 1/4
R867	ERDS2TJ105	1M 1/4
R868	ERDS2TJ332	3.3K 1/4
R871	ERDS2TJ103	10K 1/4
R872	ERDS2TJ103	10K 1/4
R873	ERDS2TJ123	12K 1/4
R874	ERDS2TJ123	12K 1/4

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Ref. No.	Part No.	Value.
R875	ERDS2TJ104	100K 1/4
R876	ERDS2TJ104	100K 1/4
R885	ERDS2TJ222	2.2K 1/4
R886	ERDS2TJ222	2.2K 1/4
R887	ERDS2TJ680	68 1/4
R888	ERDS2TJ680	68 1/4
R889	ERDS2TJ470	47 1/4
R890	ERDS2TJ470	47 1/4
R891	ERDS2TJ102	1K 1/4
R892	ERDS2TJ102	1K 1/4
CAPACITORS(VALUE,VOLTAGE)		
C1 ⚠	ECKDKC103PF2	0.01 125
C10	ECEA1CU332	3300 16
C11	ECEA1CU222	2200 16
C12	ECEA1VU101	100 35
C13	ECEA1AK101	100 10
C14	ECEA1AK101	100 10
C15	ECEA0JK470	47 6.3
C16	ECEA1CU331	330 16
C17	ECEA1CU331	330 16
C18	ECEA1VU101	100 35
C19 ⚠	ECFTD103KXL	0.01 25
C20 ⚠	ECFTD103KXL	0.01 25
C21	ECEA1CU221	220 16
C22	ECBT1C103NS5	0.01 16
C30	ECFR1E104ZF5	0.1 25
C301	ECFR1E104ZF5	0.1 25
C302	ECBT1C103NS5	0.01 16
C303	ECBT1H6R8K5	6.8P 50
C306	ECEA0JK101	100 6.3
C307	ECFR1E104ZF5	0.1 25
C308	ECFR1E104ZF5	0.1 25
C309	ECBT1C103NS5	0.01 16
C310	ECFR1E104ZF5	0.1 25
C311	ECFR1E104ZF5	0.1 25
C351	ECBT1H102KB5	0.001 50
C401	ECEA0JK470	47 6.3
C402	ECFR1E104ZF5	0.1 25
C403	ECFR1E104ZF5	0.1 25
C404	ECFR1E104ZF5	0.1 25
C405	ECBT1H102KB5	0.001 50
C406	ECBT1H102KB5	0.001 50
C407	ECEA1HKN010B	1 50
C409	ECBT1H102KB5	0.001 50
C410	ECBT1H102KB5	0.001 50
C601	ECBT1C103NS5	0.01 16
C602	ECEA1CKS100	10 16
C801	ECBT1H220J5	22P 50
C802	ECBT1H220J5	22P 50
C805	ECBT1H121KB5	120P 50
C806	ECBT1H121KB5	120P 50
C807	ECBT1H121KB5	120P 50
C808	ECBT1H121KB5	120P 50
C809	ECEA1EN3R3S	3.3 25
C810	ECEA1EN3R3S	3.3 25
C811	ECBT1H102KB5	0.001 50
C812	ECBT1H102KB5	0.001 50
C821	ARA1CN220M0T	22 16
C822	ARA1CN220M0T	22 16
C823	ECBT1H102KB5	0.001 50
C824	ECBT1H102KB5	0.001 50
C827	ECFR1E104ZF5	0.1 25
C828	ECFR1E104ZF5	0.1 25
C829	ECFR1E104ZF5	0.1 25
C830	ECFR1E104ZF5	0.1 25
C831	ECEA0JS331	330 6.3
C832	ECEA0JS331	330 6.3
C833	ECBT1H5R6K5	5.6P 50
C834	ECBT1H5R6K5	5.6P 50
C836	ECFR1E104ZF5	0.1 25
C837	ECFR1E104ZF5	0.1 25
C851	ECEA0JU471	470 6.3
C852	ECEA1CKN100B	10 16
C861	ECEA1AK101	100 10
C862	ECEA1AK101	100 10
C871	ECEA1EKN3R3B	3.3 25
C872	ECEA1EKN3R3B	3.3 25
C873	ECQM1H103KF	0.01 50
C874	ECQM1H103KF	0.01 50
C875	ECFTD103KXL	0.01 25
C876	ECFTD103KXL	0.01 25
C878	ECFTD103KXL	0.01 25
C879	ECFTD103KXL	0.01 25
C881	ECEA1CN101SE	100 16
C882	ECEA1CN101SE	100 16
SERVO P.C.B.		
RESISTORS(VALUE,WATTAGE)		
R101	ERDS2TJ471	470 1/4
R102	ERJ6GEYJ120V	12 1/10
R103	ERJ6GEYJ122	1.2K 1/10
R104	ERJ6GEYJ471	470 1/10
R105	RRJ6GCJ102TE	1K 1/6
R106	RRJ6GCJ102TE	1K 1/6
R108	ERJ6GEYJ224V	220K 1/10
R110	ERDS2TJ222	2.2K 1/4
R111	ERJ6GEYJ154V	150K 1/10
R113	ERJ6GEYJ472V	4.7K 1/10
R114	ERJ6GEYJ683V	68K 1/10
R116	ERJ6GEYJ332V	3.3K 1/10
R117	ERJ6GEYJ123	12K 1/10
R118	ERJ6GEYJ333V	33K 1/10
R119	RRJ6GCJ223TE	22K 1/6
R122	ERDS2TJ104	100K 1/4
R123	ERJ6GEYJ470V	47 1/10
R124	RRJ6GCJ103TE	10K 1/6
R125	RRJ6GCJ222TE	2.2K 1/6
R127	ERDS2TJ681	680 1/4
R128	RRJ6GCJ103TE	10K 1/6
CAPACITORS(VALUE,VOLTAGE)		
C101	ECEA1CKS220I	22 16
C102	ECEA1HKS010I	1 50
C103	ECEA1CKS220I	22 16
C106	RCUV1E104ZF	0.1 25
C107	ECEA0GKS101I	100
C108	ECEA0JKS470I	47 6.3
C109	ECEA1HKS010I	1 50
C110	RCUV1H681KB	680P 50
C111	ECUV1C224KR	0.22 16
C112	RCUV1H331KB	330P 50
C113	ECEA1HSN010I	1 50
C114	RCUV1E333KB	0.033 25
C115	ECEA1HSN010I	1 50
C116	RCUV1E333KB	0.033 25
C117	ECBT1H102KB5	0.001 50
C119	ECEA1CKN4R7I	4.7 16
C120	ECEA1CKN4R7I	4.7 16
C122	ECEA0JKS220I	22 6.3
C123	RCUV1E104ZF	0.1 25
C124	ECUV1E823KB	0.082 25
C125	ECUV1C224KR	0.22 16
C127	ECEA0JKF101I	100 6.3
C128	ECEA1CKA101I	100 16
C132	ECUV1E104KB	0.1 25
C133	RCUV1H330KC	33P 50
C134	ECUV1C224KR	0.22 16
C135	ECUV1C224KR	0.22 16
C136	ECEA0GKS101I	100
C138	RCUV1E104ZF	0.1 25
C139	RCUV1H470KC	47P 50
C140	RCUV1E103KB	0.01 25
C141	RCUV1H470KC	47P 50
C142	RCUV1H470KC	47P 50
C143	RCUV1H470KC	47P 50
C144	RCUV1H470KC	47P 50
C145	ECEA0JKF101I	100 6.3
C146	RCUV1H181KC	180P 50
C147	RCUV1H472KB	0.0047 50
C148	ECEA1ESN4R7I	4.7 25
C149	RCUV1E104ZF	0.1 25
C150	RCUV1E103KB	0.01 25

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.
* "Ⓢ" mark parts are used for silver type only.
* "Ⓚ" mark parts are used for black type only.
Parts other than "Ⓢ" and "Ⓚ" marked are used for both silver and black types.
* Remote control ass'y: Supply period for three years from termination of production.
* Warning: This product uses a laser diode. Refer to caution statements on page. 3.
* ACHTUNG:
• Die lasereinheit nicht zeriegen.
• Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No.		Part No.	Description
INTEGRATED CIRCUITS			
IC11		LM2940T5	I.C. REGULATOR
IC13		SVIBA4558F	I.C. RESET
IC301		MN6625	I.C. DIGITAL SIGNAL PROCESSING
IC302		SVICXK5816M	I.C. 16K RAM
IC303		SVITOTX174	I.C. OPTICAL TRANSMISSION
IC401		MN1554PEZ-1	I.C. SYSTEM CONTROL
IC402		SVIBA4558F	I.C. MOTOR DRIVE
IC601		MB88724BPJC	I.C. SYSTEM CONTROL/FL DRIVE
IC602		HC-MD10E	I.C. REMOTE SENSOR
IC801		MN6471	I.C. D.F D/A CONVERTER
IC802		LM833M	I.C. BUFFER AMP
IC803		LM833M	I.C. BUFFER AMP
IC804		LM833M	I.C. BUFFER AMP
IC805		NJM4560M	I.C. BUFFER AMP
IC806		NJM4560M	I.C. BUFFER AMP
IC811		SVIH8DN2175	I.C. L.P.F
IC812		SVIH8DN2175	I.C. L.P.F
IC871		SVINJM4556SA	I.C. HEADPHONES AMP
ICP1 (EK, XA)	⚠	SRUF38	I.C.PROTECTOR
ICP2 (EK, XA)	⚠	SRUF38	I.C.PROTECTOR
ICP11	⚠	SRUN15	I.C.PROTECTOR
ICP12 (EK)	⚠	SRUN15	I.C.PROTECTOR
TRANSISTORS			
Q11		2SB1240-P	TRANSISTOR
Q12		2SB1238QS	TRANSISTOR
Q13		2SD1862-P	TRANSISTOR
Q301		DTC124EST	TRANSISTOR
Q351		DTA124EST	TRANSISTOR
Q401		2SD1862-P	TRANSISTOR
Q402		2SB1240-P	TRANSISTOR
Q403		2SD1862-P	TRANSISTOR
Q404		2SB1240-P	TRANSISTOR
Q405		DTC124EST	TRANSISTOR
Q801		2SC3311A-Q	TRANSISTOR
Q802		2SC3311A-Q	TRANSISTOR
Q803		2SD1450R	TRANSISTOR
Q804		2SD1450R	TRANSISTOR
Q851		DTA114EST	TRANSISTOR
Q852		2SA1309Q	TRANSISTOR
Q853		DTA124EST	TRANSISTOR
Q854		DTC124EST	TRANSISTOR
Q855		DTA124EST	TRANSISTOR
Q861		2SC3311A-Q	TRANSISTOR
Q862		2SA1309Q	TRANSISTOR
Q871		2SD1450R	TRANSISTOR
Q872		2SD1450R	TRANSISTOR
DIODES			
D11	⚠	SVDS5688GT3	DIODE, SI
D12	⚠	SVDS5688GT3	DIODE, SI
D13	⚠	SVDS5688GT3	DIODE, SI
D14	⚠	SVDS5688GT3	DIODE, SI
D15	⚠	SVDS5688GT3	DIODE, SI
D16		MA4330M	DIODE
D17	⚠	SVDS5688GT3	DIODE, SI
D18		MA4062-H	DIODE
D21	⚠	SVDS5688GT3	DIODE, SI
D22	⚠	SVDS5688GT3	DIODE, SI
D23		MA4062-H	DIODE

Ref. No.	Part No.	Description
D402	MA4051-M	DIODE
D403	MA4051-M	DIODE
D410	MA4033M	DIODE
D411	MA165	DIODE
D601	MA165	DIODE
D602	MA165	DIODE
D603	MA165	DIODE
D604	MA165	DIODE
D605	MA165	DIODE
D606	MA165	DIODE
D607	MA165	DIODE
D608	MA165	DIODE
D609	MA165	DIODE
D610	MA165	DIODE
D611	MA165	DIODE
D612	MA165	DIODE
D613	SVDSLR-54MW4	L.E.D
D614	SVDSLR-54MW4	L.E.D
D615	SVDSLR-54MW4	L.E.D
D801	MA165	DIODE
D802	MA165	DIODE
D851	MA165	DIODE
D852	MA165	DIODE
D853	MA165	DIODE
D854	MA165	DIODE
D855	MA165	DIODE
VARIABLE RESISTORS		
VR601	EVQWVP02504E	V.R. SEARCH
VR871	EVU57A022A14	V.R. PHONE LEVEL
COILS AND TRANSFORMERS		
L303	ELEPK5R6KA	COIL
L601	VLP0053	COIL
L871	ELEPK1R0KA	COIL
L872	ELEPK1R0KA	COIL
L873	ELEPK1R0KA	COIL
T1 ⚠ (E, EB, EH, EF) (EI, EG)	SLTD5K061SE	POWER TRANSFORMER
T1 ⚠ (EK, XL)	SLTD5K062SG	POWER TRANSFORMER
T1 ⚠ (XB, XA, PA) (PE, PC)	SLTD5K063SX	POWER TRANSFORMER
OSCILLATORS		
X801	SVQ49U338S	OSCILLATOR
DISPLAYS		
FL601	SAD14MT10GK	DISPLAY
FUSES		
F1 ⚠ (E, EG, EB, EH) (EF, EI, EK) (XL)	XBA2C012TB0S	FUSE(250V,T125mA)
F1 ⚠ (XB, XA, PA) (PE, PC)	XBA2C025TB0	FUSE(250V,T250mA)
SWITCHES		
S1 ⚠	ESB8249V	SW, POWER
S2 ⚠ (XA, XB, PA) (PE, PC)	SSR187-1	SW, VOLTAGE SELECTOR

Ref. No.	Part No.	Description
S101	SSPD17	SW, LOADING DET
S102	SSPD18	SW, LOADING DET
S601	EVQQTG07K	SW, SIDE A/B
S602	EVQQTG07K	SW, AUTO CUE
S603	EVQQTG07K	SW, PROGRAM
S604	EVQQTG07K	SW, EDIT/TAPE LENGTH
S605	EVQQTG07K	SW, PEAK SEARCH
S606	EVQQTG07K	SW, REPEAT
S607	EVQQTG07K	SW, DISPLAY MODE
S608	EVQQTG07K	SW, RECALL
S609	EVQQTG07K	SW, DISC LINK
S610	EVQQTG07K	SW, PLAY
S611	EVQQTG07K	SW, TIME MODE
S612	EVQQTG07K	SW, CLEAR
S613	EVQQTG07K	SW, NO.1
S614	EVQQTG07K	SW, NO.5
S615	EVQQTG07K	SW, NO.9
S616	EVQQTG07K	SW, NO.0
S617	EVQQTG07K	SW, OPEN/CLOSE
S618	EVQQTG07K	SW, NO.2
S619	EVQQTG07K	SW, NO.6
S620	EVQQTG07K	SW, NO.10
S621	EVQQTG07K	SW, +10
S622	EVQQTG07K	SW, STOP
S623	EVQQTG07K	SW, NO.3
S624	EVQQTG07K	SW, NO.7

Ref. No.	Part No.	Description
S625	EVQQTG07K	SW, INDEX(F)
S626	EVQQTG07K	SW, SKIP(F)
S627	EVQQTG07K	SW, PAUSE
S628	EVQQTG07K	SW, NO.4
S629	EVQQTG07K	SW, NO.8
S630	EVQQTG07K	SW, INDEX(R)
S631	EVQQTG07K	SW, SKIP(R)
SERVO P.C.B.		
INTEGRATED CIRCUITS		
IC101	AN8373S	I.C. SERVO AMP
IC102	AN8374S	I.C. SERVO PROCESSOR
IC103	AN8377	I.C. B.T.L DRIVE
IC104	LM2940T5M	I.C. RESET
TRANSISTORS		
Q101	2SA1547QSTV2	TRANSISTOR
VARIABLE RESISTORS		
VR101	EVND3AA00B14	V.R. BEST EYE ADJ.
VR102	EVND3AA00B14	V.R. TRACKING GAIN ADJ.
VR103	EVND3AA00B14	V.R. TRACKING OFFSET ADJ.
VR104	EVND3AA00B14	V.R. FOCUS GAIN ADJ.
VR105	EVND3AA00B14	V.R. FOCUS OFFSET ADJ.
VR106	EVND3AA00B24	V.R. TRACKING BALANCE ADJ.
MAGNET RESISTOR ELEMENTS		
RA1	EWS7M0A00Q53	RESISTANCE UNIT

Ref. No.		Part No.	Description
PACKING MATERIAL			
P1 (E, EG, EB, EH) (EI, EK, XL) (XB, PA, PC) (PE, XA)	Ⓚ	SPND356	CARTON BOX
P1 (EF)	Ⓚ	SPND358	CARTON BOX
P1 (E, EG, EB, EH) (EF, EI, EK) (XL)	Ⓢ	SPND360	CARTON BOX
P1 (EF)	Ⓢ	SPND361	CARTON BOX
P2		SPSD192	PAD(FL)
P3		SPSD193	PAD(FR)
P4		SPSD194	PAD(BL)
P5		SPSD195	PAD(BR)
P6		SPSD152	ACCESSORY BOX
P7		XZB26X17C03	PROTECTION BAG(CORDS)
P9		XZB60X60A01	PROTECTION BAG
ACCESSORIES			
A1 (EF, XL, XA)		SQUD390	INSTRUCTION MANUAL
A1 (EG)		SQUD392	INSTRUCTION MANUAL
A1 (EI)		SQUD393	INSTRUCTION MANUAL

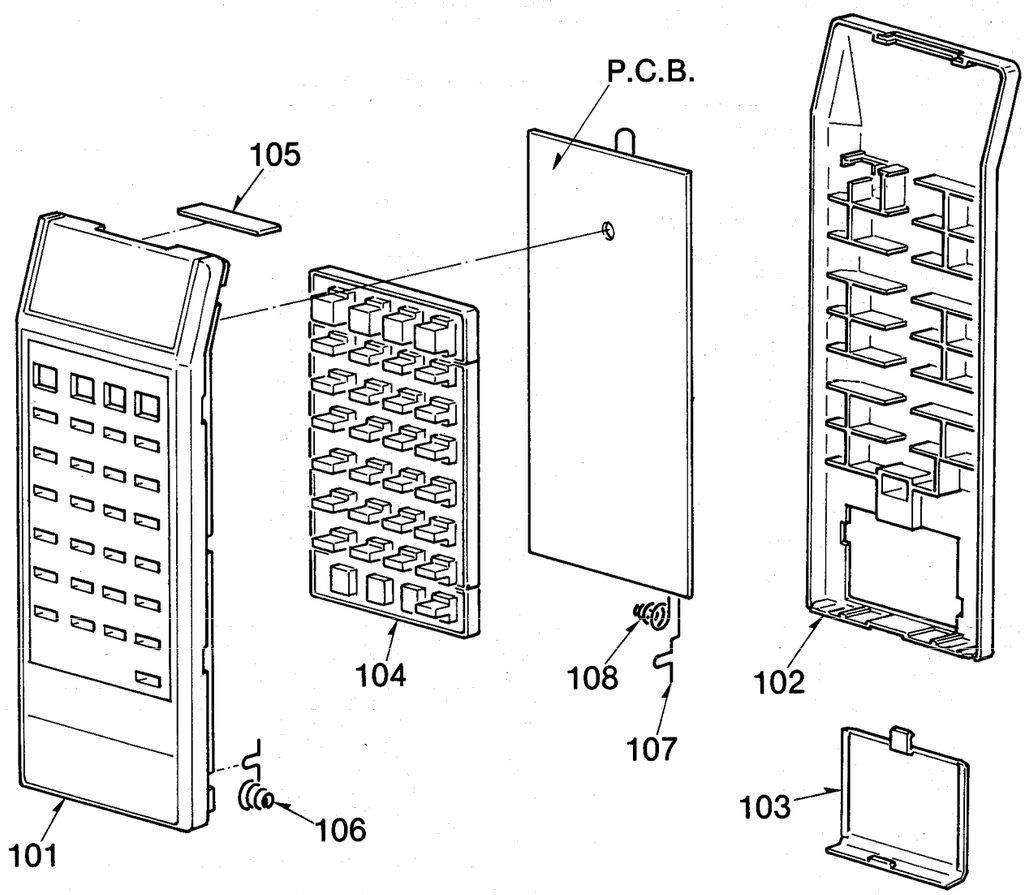
Ref. No.		Part No.	Description
A1 (EK)		SQUD394	INSTRUCTION MANUAL
A1 (E, EB, EH)		SQULP555-E	INSTRUCTION MANUAL
A1 (PA, PE, PC)		SQULP555-PA	INSTRUCTION MANUAL
A1 (XB)		SQULP555-XB	INSTRUCTION MANUAL
A2 (XA, PA, PE) (PC)	⚠	SJA168	POWER CORD
A2 (XL)	⚠	SJA173	POWER CORD
A2 (XB)	⚠	SJA183	POWER CORD
A2 (E, EG, EB, EH) (EF, EI)	⚠	SJA187	POWER CORD
A2 (EK)	⚠	SJA193	POWER CORD
A3		SJP2249-3	OUTPUT CORD
A4 (E, EG, EB, EH) (EF, EI, EK) (XB, XA, PA) (PE, PC)		UM-4NE/2S	BATTERY
A4 (XL)		UM-4NEP/2S	BATTERY
A5 (XB, XA, PA) (PE, PC)	⚠	RJP120ZBS-H	AC PLUG ADAPTOR

Ref. No.	Part No.	Description
REMOTE CONTROL		
INTEGRATED CIRCUITS		
IC1	MN6014HS	I.C
TRANSISTORS		
Q1	2SC3265Y	TRANSISTOR
DIODES		
D1	LN66-S	L.E.D
OSCILLATOR		
X1	CSB420PB6	OSCILLATOR
RESISTORS		
R1	ERD25TLJ1R0U	RESISTOR
CAPACITORS		
C1	ECUV1H471KCG	CAPACITOR
C2	ECUV1H471KCG	CAPACITOR
C3	ECEA0GK101	ELECTROLYTIC, 100μF, 4V
MECHANISM PARTS		
101 Ⓚ	UR64VCS710	UPPER CABINET
101 Ⓢ	UR64VCS712	UPPER CABINET
102 Ⓚ	UR64CS803A	LOWER CABINET
102 Ⓢ	UR64CS803B	LOWER CABINET
103 Ⓚ	UR64EC804	BATTERY COVER
103 Ⓢ	UR64EC804A	BATTERY COVER
104	UR64CT805K	BUTTON
105	UR52SB327	PLATE(SMOKE)
106	UR64TD374	BATTERY TERMINAL(COMMON)
107	UR64TD808	TERMINAL (+)
108	UR64TD809	TERMINAL (-)
REMOTE CONTROL ASS'Y		
RC1 Ⓚ (E, EG, EB, EH) (EF, E1, EK) (XL)	EUR64766	REMOTE CONTROL (Refer to Notes)
RC1 Ⓢ	EUR64767	REMOTE CONTROL

Ref. No.	Part No.	Description
CABINET AND CHASSIS		
1	SKUD192ZF1A	CHASSIS
2 (E)	SGPD771ZF2G	REAR PANEL
2 Ⓚ (XA)	SGPD771ZF3F	REAR PANEL
2 Ⓚ (EB, EH, EF) (E1)	SGPLP555-KEB	REAR PANEL
2 Ⓚ (EG)	SGPLP555-KEG	REAR PANEL
2 Ⓚ (EK)	SGPLP555-KEK	REAR PANEL
2 Ⓚ (PA, PE, PC)	SGPLP555-KPA	REAR PANEL
2 Ⓚ (XB)	SGPLP555-KXB	REAR PANEL
2 Ⓚ (XL)	SGPLP555-KZL	REAR PANEL
2 Ⓢ (EB, EH, EF) (E1)	SGPLP555-SEB	REAR PANEL
2 Ⓢ (EG)	SGPLP555-SEG	REAR PANEL
2 Ⓢ (EK)	SGPLP555-SEK	REAR PANEL
2 Ⓢ (XL)	SGPLP555-SXL	REAR PANEL
3	SKLD8-E	FOOT
4	SKUD230KF0A	BOTTOM COVER
5	SUBD14	ROD
6 Ⓚ	SBC666-1	BUTTON
6 Ⓢ	SBC666	BUTTON, POWER
7 Ⓚ	SKCD590KE2	CABINET BODY
7 Ⓢ	SKCD590SW2	CABINET BODY
8	SHE185-2	HOLDER
10 Ⓚ	SGWLP555-KE	FRONT PANEL ASS'Y
10 Ⓢ	SGWLP555-SE	FRONT PANEL ASS'Y
10-1 Ⓚ	SGXLP777-K	ORNAMENT
10-1 Ⓢ	SGXLP777-S	ORNAMENT
11 Ⓚ	SGYLP555-KE	FRONT GRILLE
11 Ⓢ	SGYLP555-SE	FRONT GRILLE
11-1	SGUD223	ORNAMENT
12 Ⓚ	SBN1161-2	KNOB
12 Ⓢ	SBN1161-3	KNOB
13 Ⓚ	SBND110ZC0A	KNOB
13 Ⓢ	SBND110MA0A	KNOB
14	SUSD162	SPRING
15	SHRD202	SPRING
16	CSTW-2	WASHER
17 ⚠ (XL)	SJSD16	AC INLET
17 ⚠ (E, EB, EK, EG) (EH, EF, E1) (XB, XA, PA) (PE, PC)	SJS9236	AC INLET
18	SJJ146B	JACK
19	SJFD4	OUTPUT TERMINAL
20	VJA1024	CAP
21 Ⓚ	SGXD3330ZK0A	ORNAMENT
21 Ⓢ	SGXD3330MA0A	ORNAMENT
22	XNS7	NUT
23	SNE4021	NUT
24	SHR9451	SPACER
31	XTB3+8JFZ	SCREW
32	XTB3+8F	SCREW
33	XTB3+16JFZ	SCREW
34 Ⓚ	SNE2129-1	SCREW
34 Ⓢ	SNE2129	SCREW
35	XTB3+12G	SCREW
36	XTB3+20G	SCREW
37	XTB3+10JFZ	SCREW
41	SJT30640LX-V	CONNECTOR (6P), CN11
42	SJT30543-V	CONNECTOR (5P), CN401
43	SJSD2221	SOCKET (22P), CN402
44	SJS50680WL	SOCKET (6P), CN301~303
45	SJS50780WL	CONNECTOR (7P), CN304
46	SJT30647WL	CONNECTOR (6P), CN601~603
47	SJT30747WL	CONNECTOR (7P), CN604
48	EMCS0750ZL	CONNECTOR, CN605
50	EMCS0750Z	CONNECTOR (7P), CN871
FC11	SIKD552062	FLAT CABLE
FC601	SIKD555031	FLAT CABLE
FC602	SIKD552061	FLAT CABLE

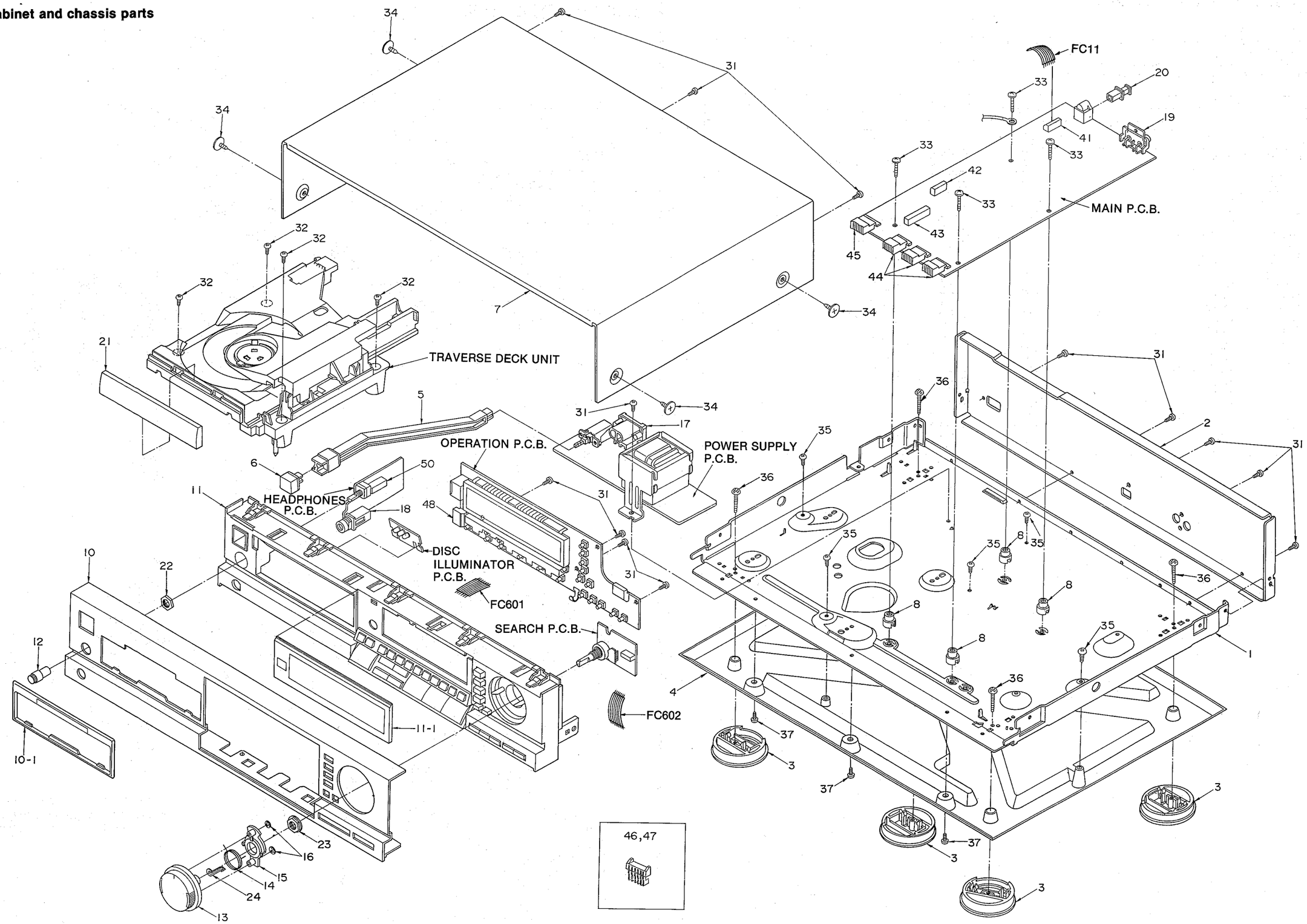
■ EXPLODED VIEW

• **Remote control unit parts**



6 7 8 9 10 11 12 13 14 15

• **Cabinet and chassis parts**



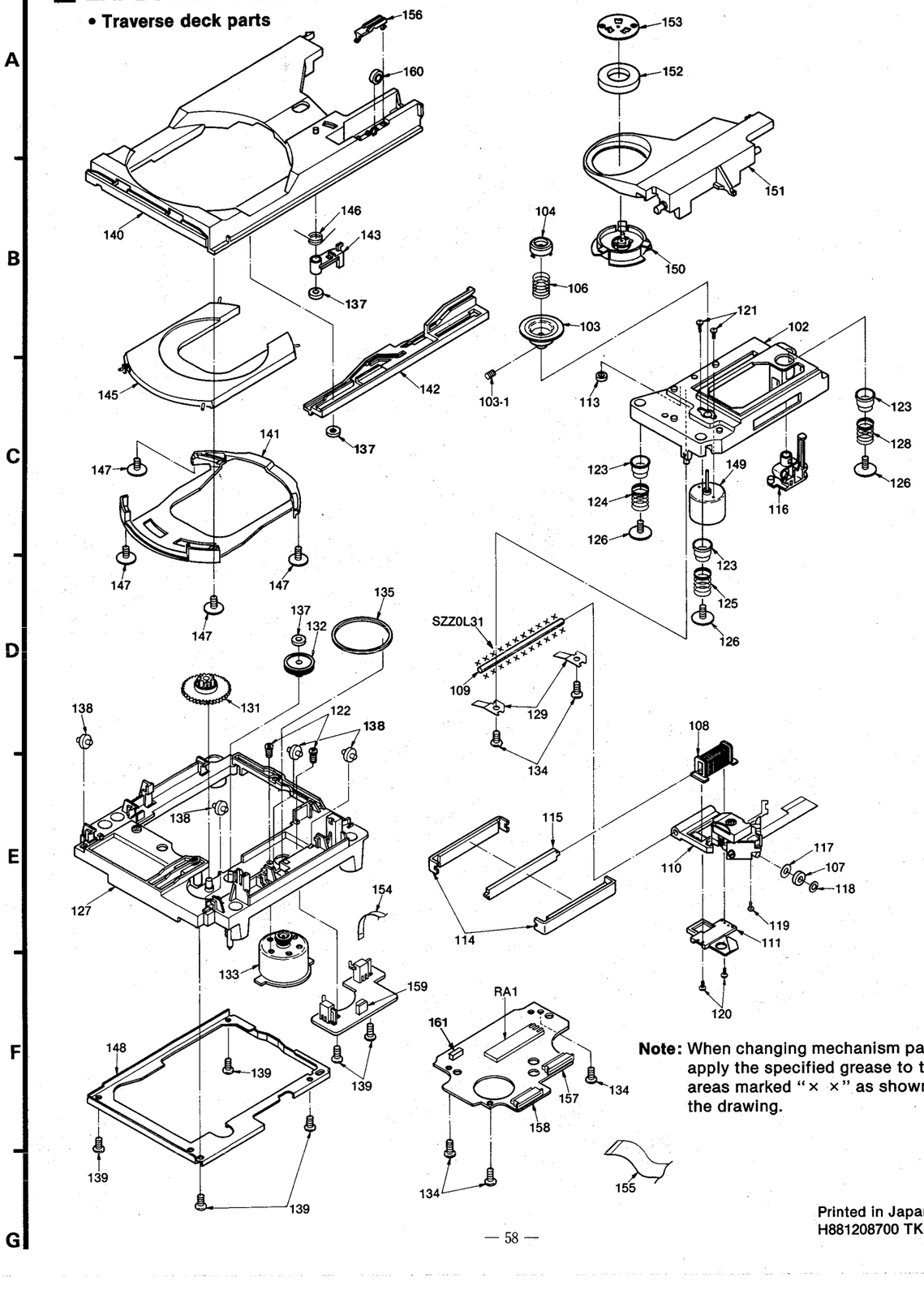
■ REPLACEMENT PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Ref. No.		Part No.	Description
TRAVERSE			
TRAVERSE DECK			
102		SISD22-1	TRAVERSE BASE
103		SD0D28-1E	TURNTABLE
103-1		XXE26D5	SCREW
104		SD0D29-2	RING
106		SRQA010N04	SPRING
107		S0RD37	ROLLER
108		S0RD38-E	COIL
109		SUXD123-1	GUIDE SHAFT
110	⚠	S0AD70A	OPTICAL PICKUP
111		SHRD176-E	COIL HOLDER
113		SHGD148	STOPPER
114		S0YD21-E	YOKE
115		S0YD22	YOKE
116		SHRD177-1	LOCK UNIT
117		SHWD33	WASHER
118		SHWD34	WASHER
119		SNSD31	SCREW
120		XTN2+5G	SCREW
121		XYN2+C8	SCREW
122		XYN26+J6	SCREW
123		SHGD153-1	CUSHION RUBBER
124		SUSD136-1	SPRING
125		SUSD137-1	SPRING
126		SNSD33	SCREW
127		SIWLP555-KN	LOADING BASE
128		SUSD145-1	SPRING
129		SUWD112	GUIDE SHAFT HOLDER
131		SDGD58	MAIN GEAR
132		SDGD59-2	GEAR
133		SIRD94-E	LOADING MOTOR
134		XTB3+10G	SCREW
135		SMBD7	BELT
137		SFUMZ15R61	WASHER
138		SDRD14	ROLLER
139		XTB3+8G	SCREW
140		SIRD97-2E	HOLDER
141		SIRD107-1	TRAY BASE
142		SIRD40-2	RACK GEAR
143		SIRD96	LOCK LEVER
145		SIRD98-2	DISC TRAY
146		SUSD83	SPRING
147		SNSD36	SCREW
148		SIWD105	BRACKET
149		SJGDRF310T-2	SPINDLE MOTOR
150		SIRD51-1	HOLDER
151		SIRD42-3	LEAD WIRE CLAMP
152		S0MD4	MAGNET
153		S0YD2	YOKE
154		SIKD150051	FLAT CABLE
155		SIKD150221-1	FLAT CABLE
156		SHRD150	ROLLER HOLDER
157		SJSD1722M	SOCKET(17P)
158		SJSD2222M	SOCKET(22P)
159		SJT30543-V	CONNECTOR(5P)
160		SDRD12	ROLLER
161		EMCS0552MP	CONNECTOR(5P)

■ EXPLODED VIEW

• **Traverse deck parts**



Note: When changing mechanism parts, apply the specified grease to the areas marked "× ×" as shown in the drawing.

Printed in Japan
H881208700 TK/YY